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Draft Plan Amendment
and
Draft Environmental Impact Statement/ Environmental Impact Report

for the

Ocotillo Wind Energy Facility

Volume 2 of 2
Appendices



Bureau of Land Management

County of Imperial

June 2011

BLM

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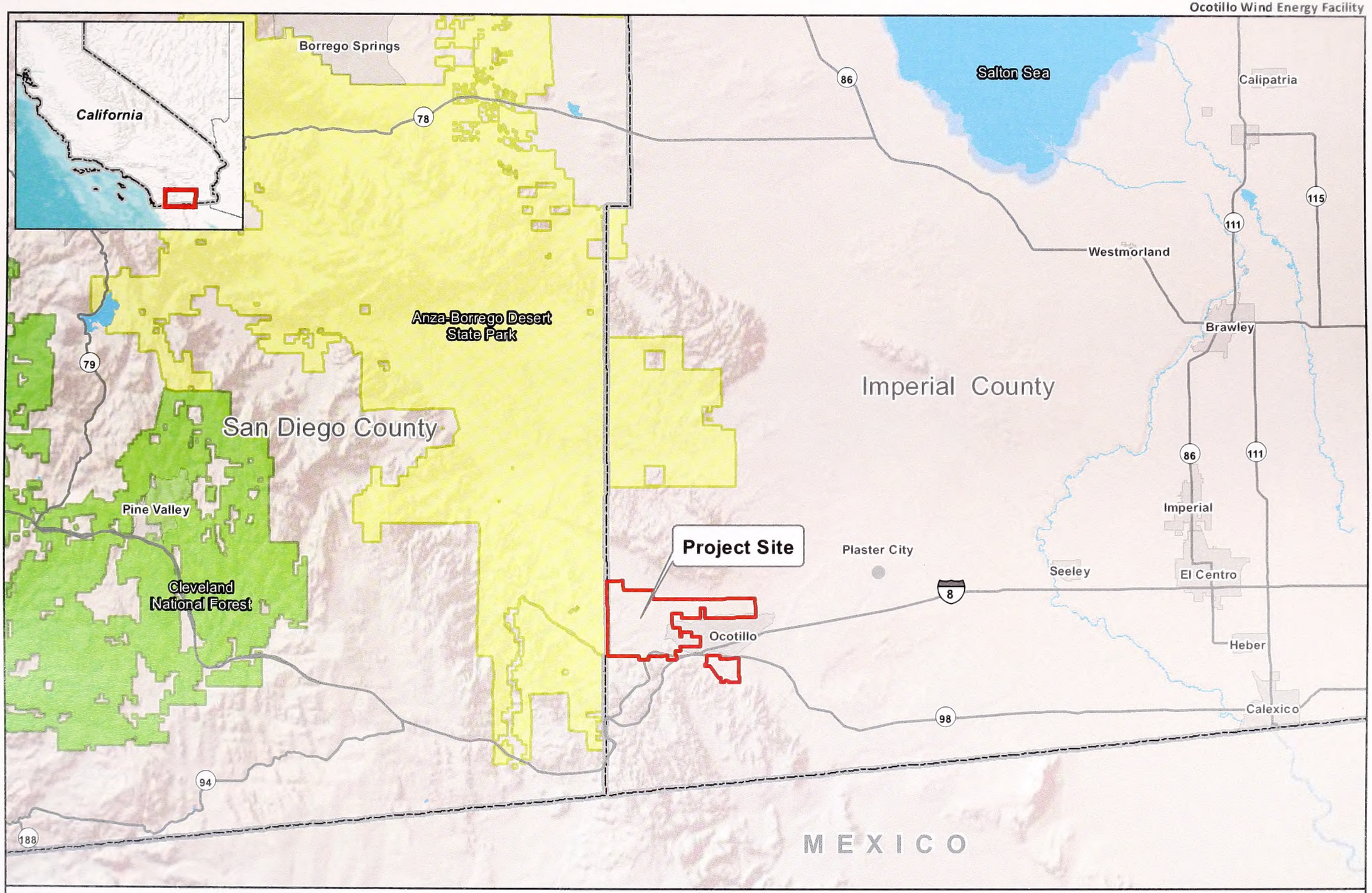
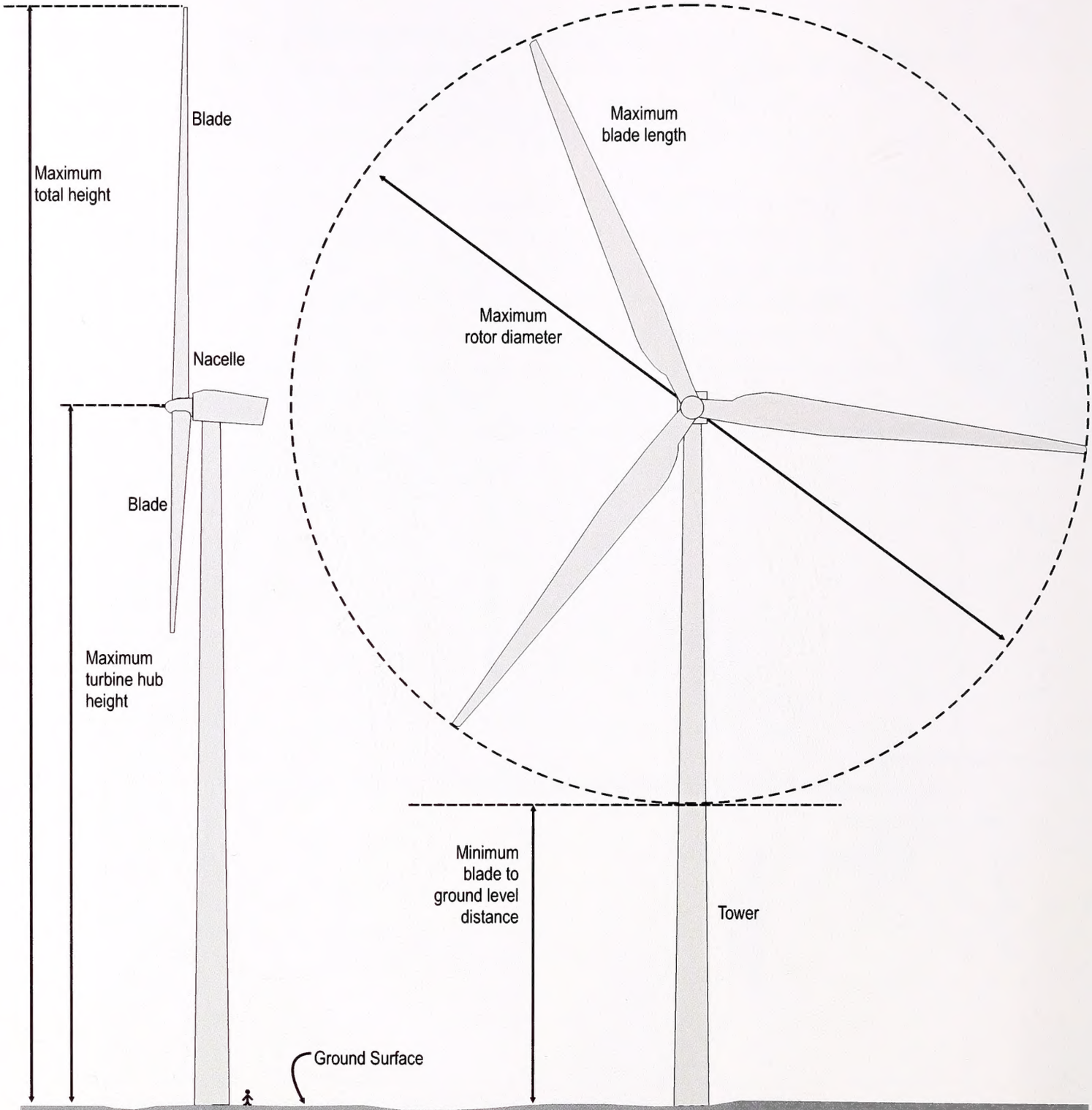


Figure 1-1

Project Location Map



Turbine Model Options		
	GE - 1.6/2.75 MW Turbine	Siemens - 2.3/3.0 MW Turbine
Maximum Total Height	438 feet	448 feet
Maximum Turbine Hub Height	262.5 feet	262.5 feet
Minimum Blade to Ground Level Distance	87 feet	77 feet
Maximum Rotor Diameter	351 feet	371 feet
Maximum Blade Length	~175.5 feet	~185.5 feet

Figure 2.1-1

Schematic Illustration of Proposed Turbine Model

Source: Specifications provided by Ocotillo Express LLC, 2010.

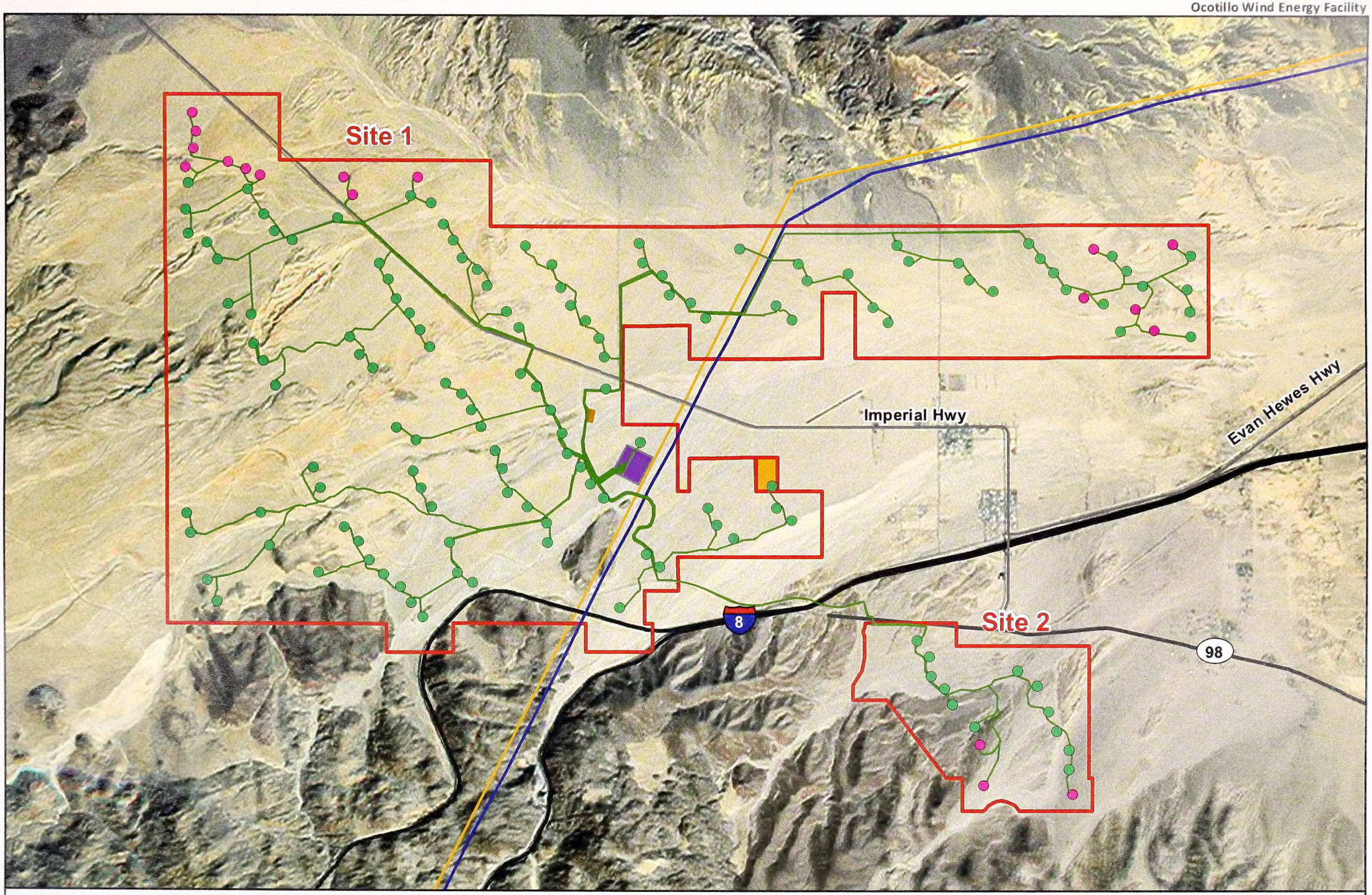


Figure 2.1-2

Electrical Components of the Proposed Action

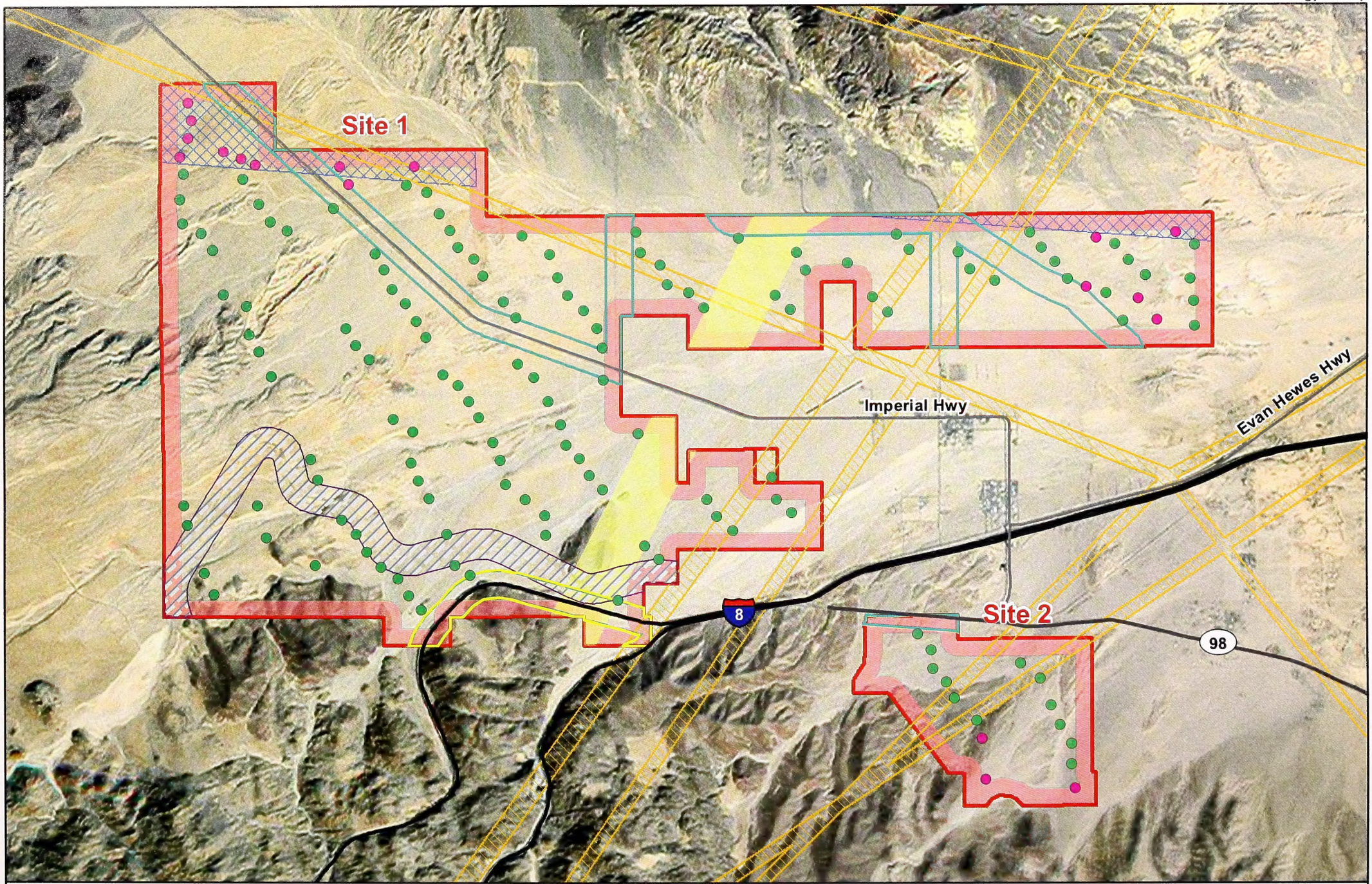


Figure 2.1-3

Environmental Constraints for the Proposed Action

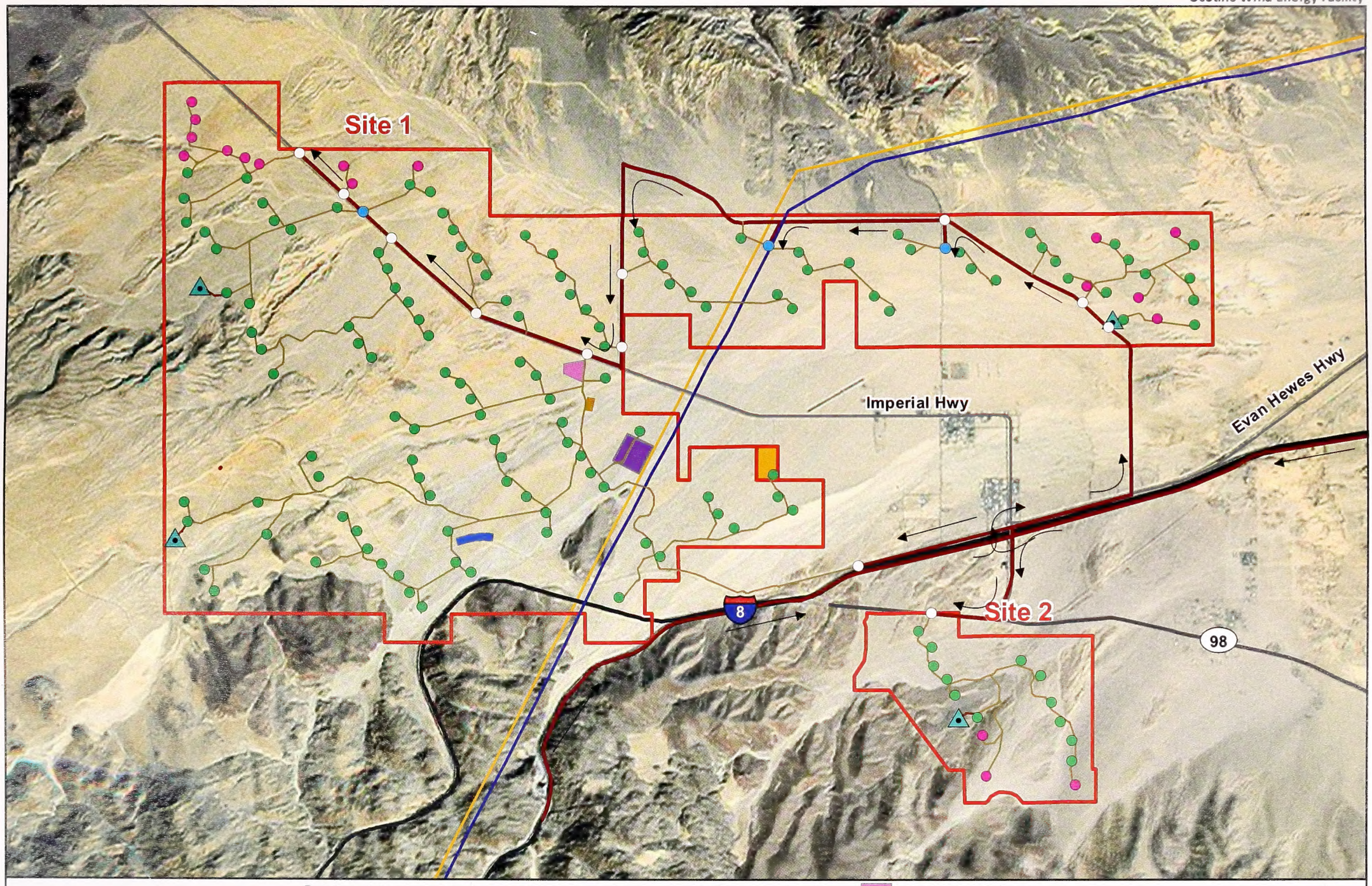


Figure 2.1-4
Site Access Locations for the Proposed Action

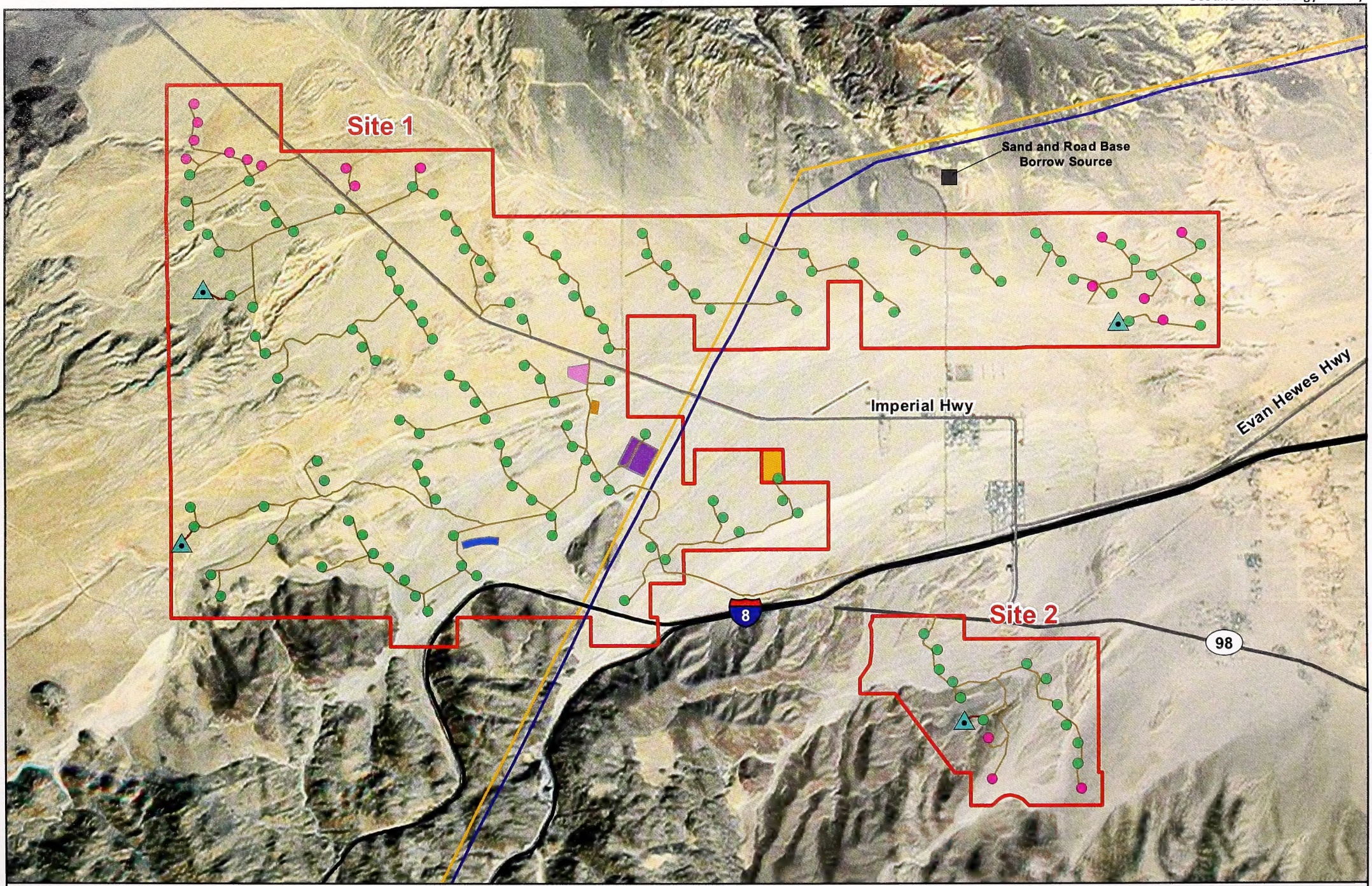


Figure 2.3-1

Alternative 1: Proposed Action

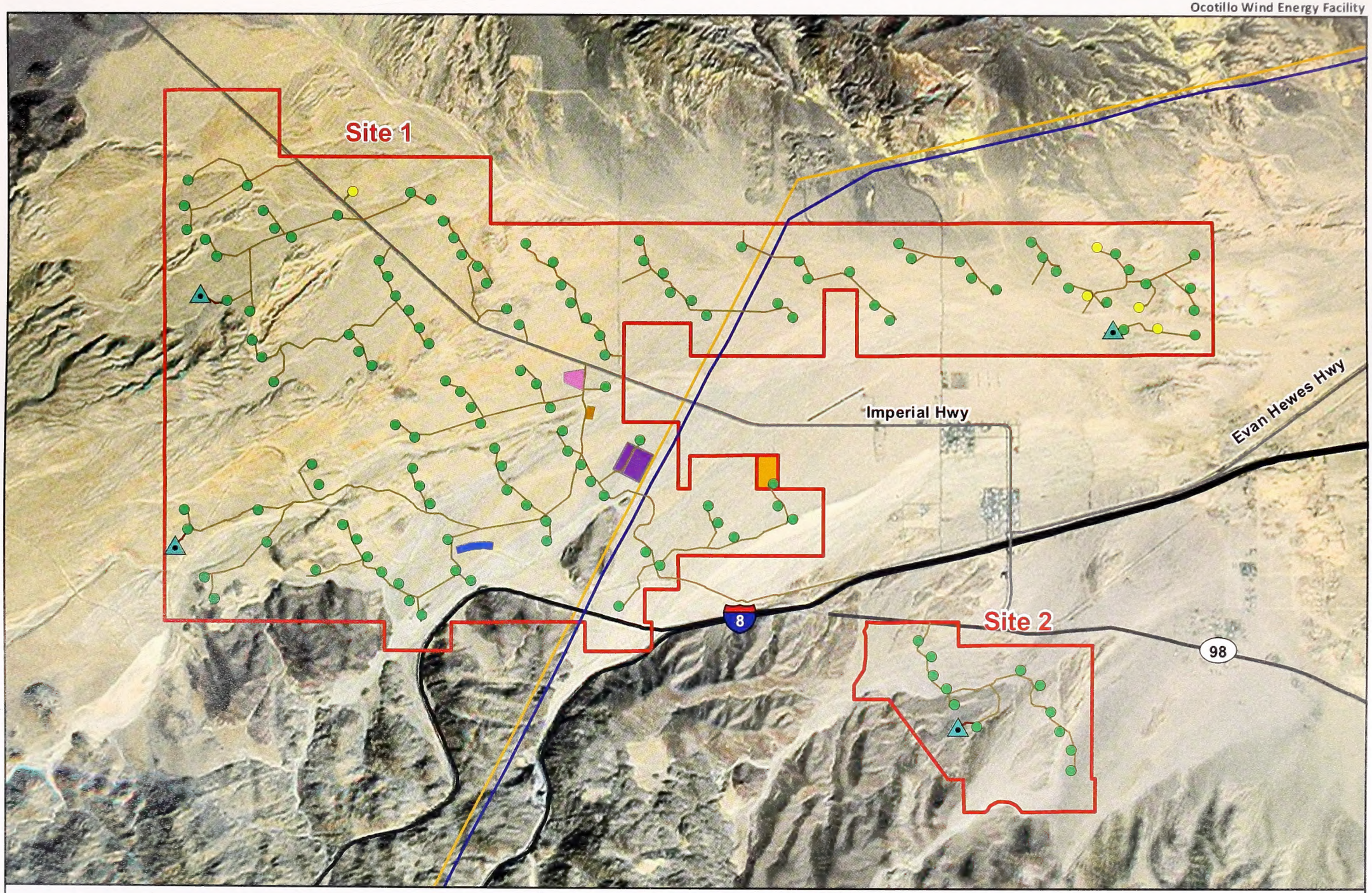


Figure 2.3-2

Alternative 2:
137 Wind Turbine Generators

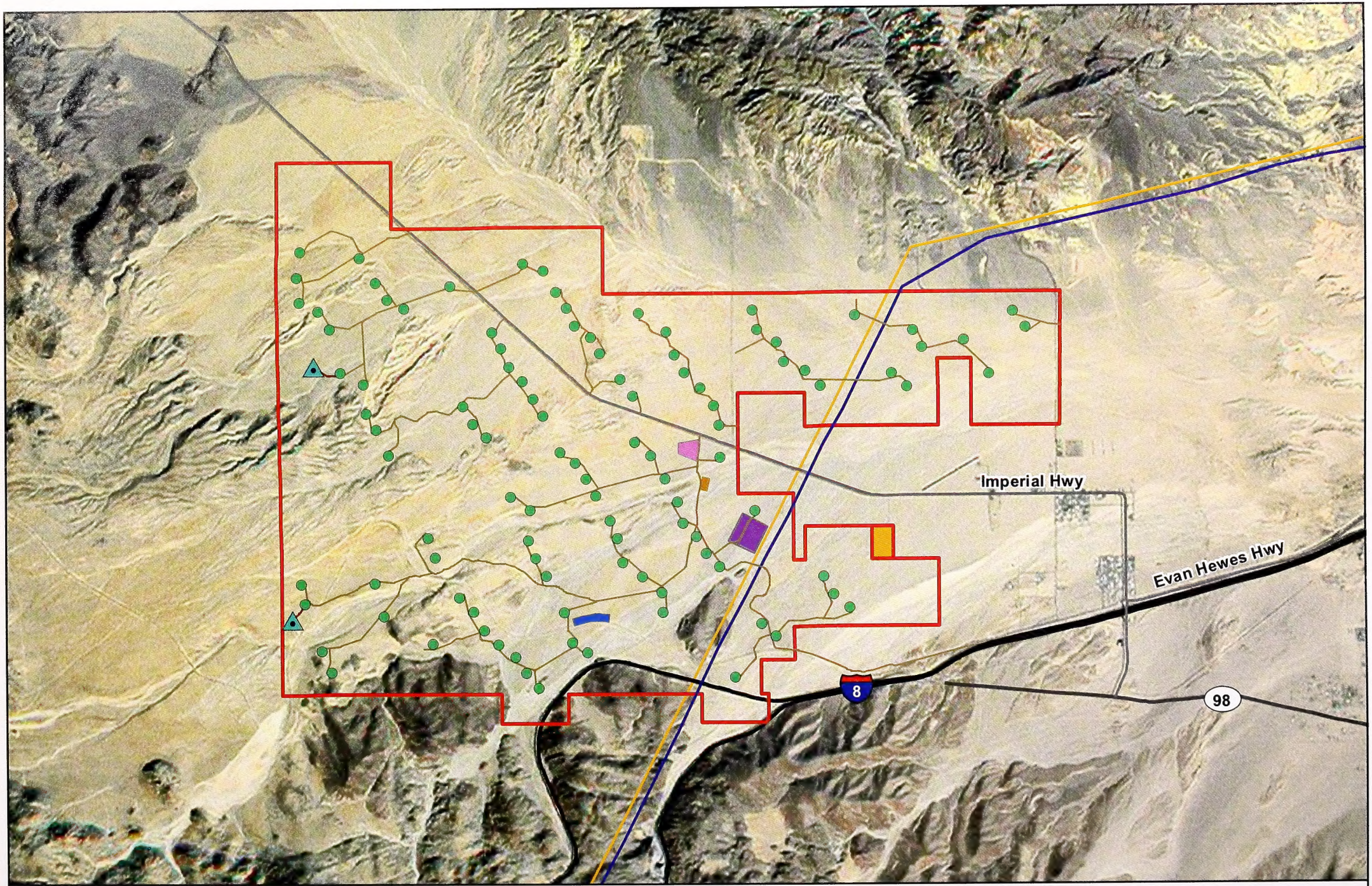


Figure 2.3-3

Alternative 3:
105 Wind Turbine Generators

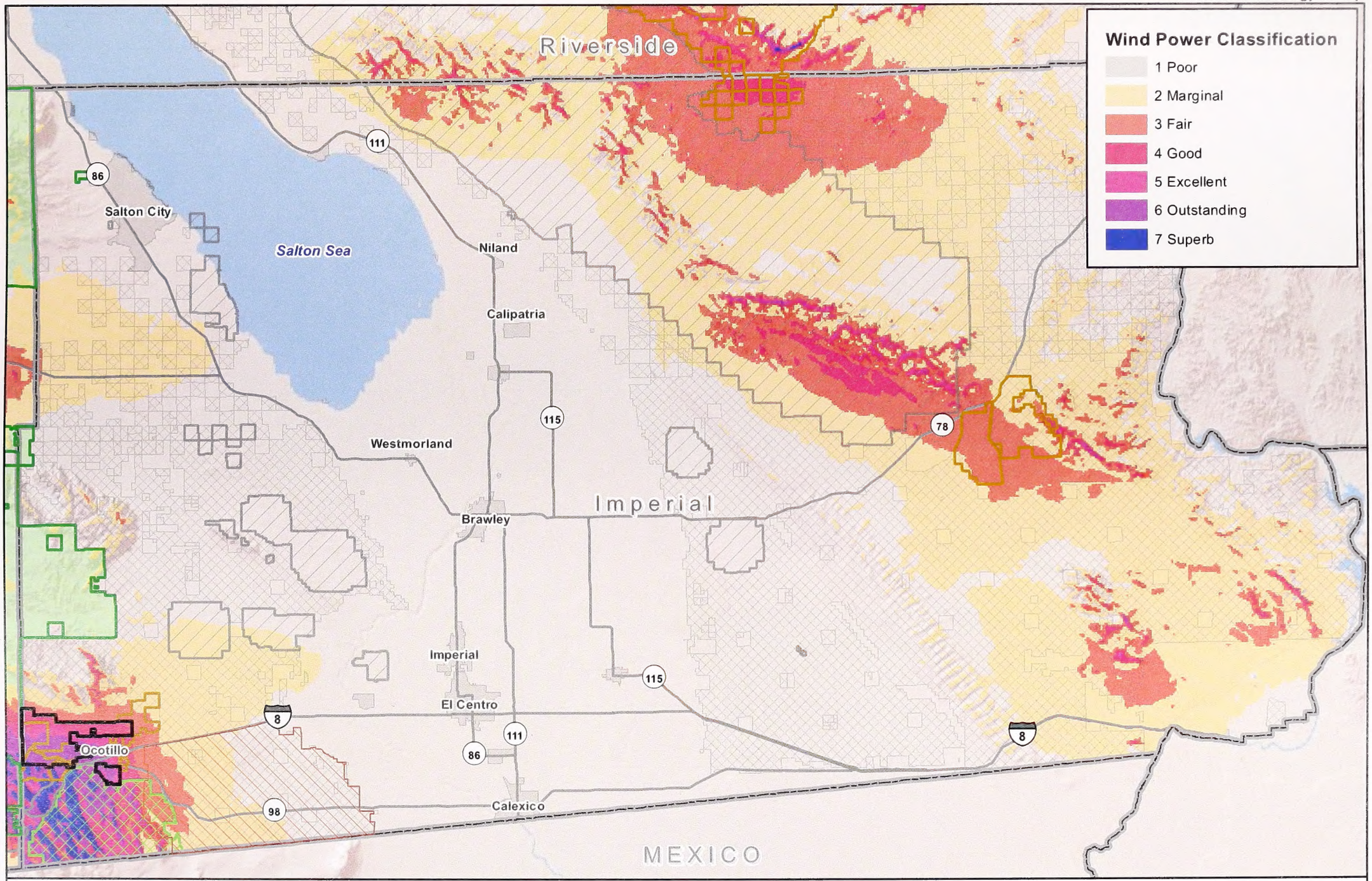


Figure 2.7-1

Wind Resources

Source: NREL, 2009

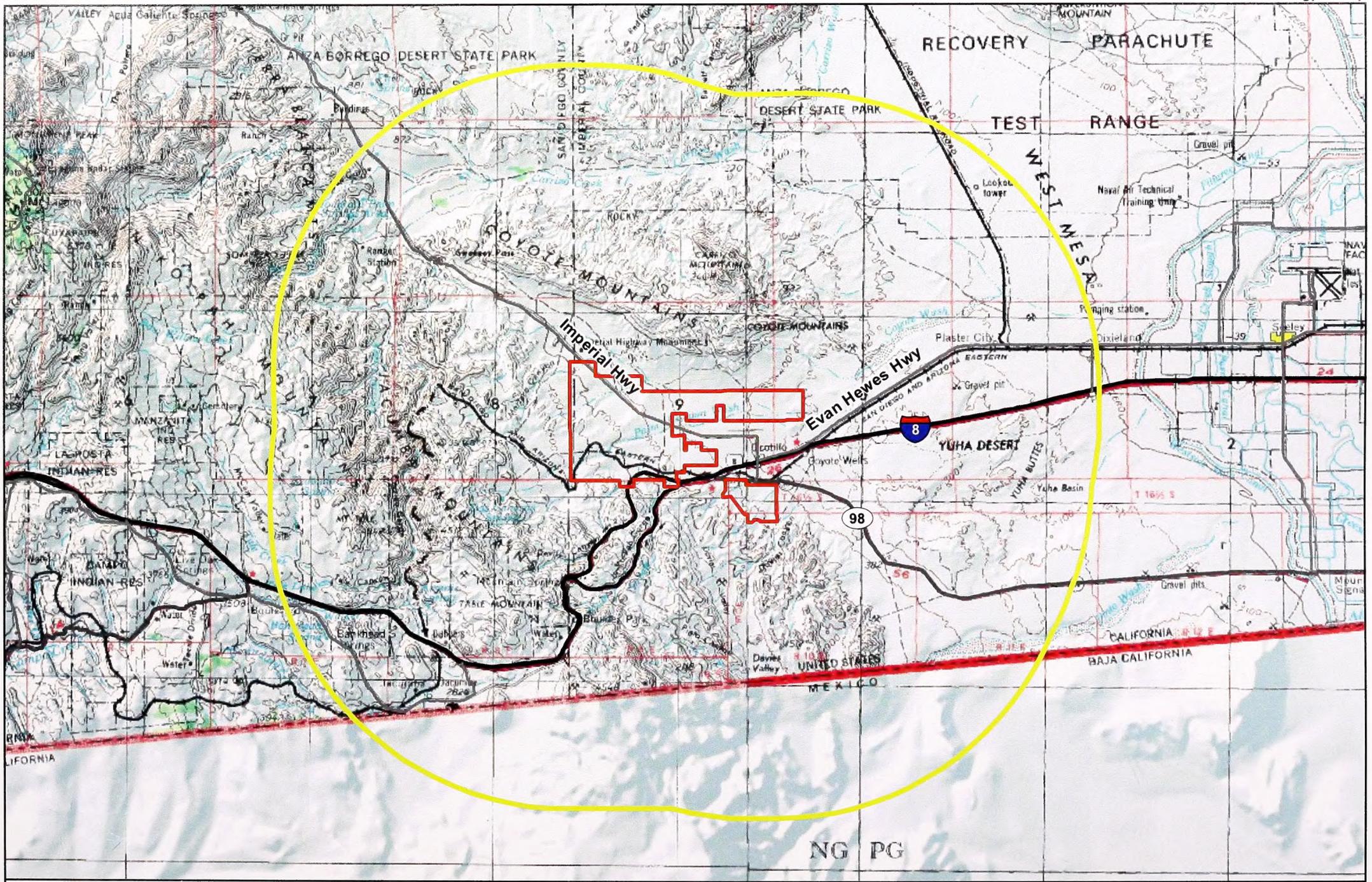


Figure 3.4-1

Area of Potential Effect

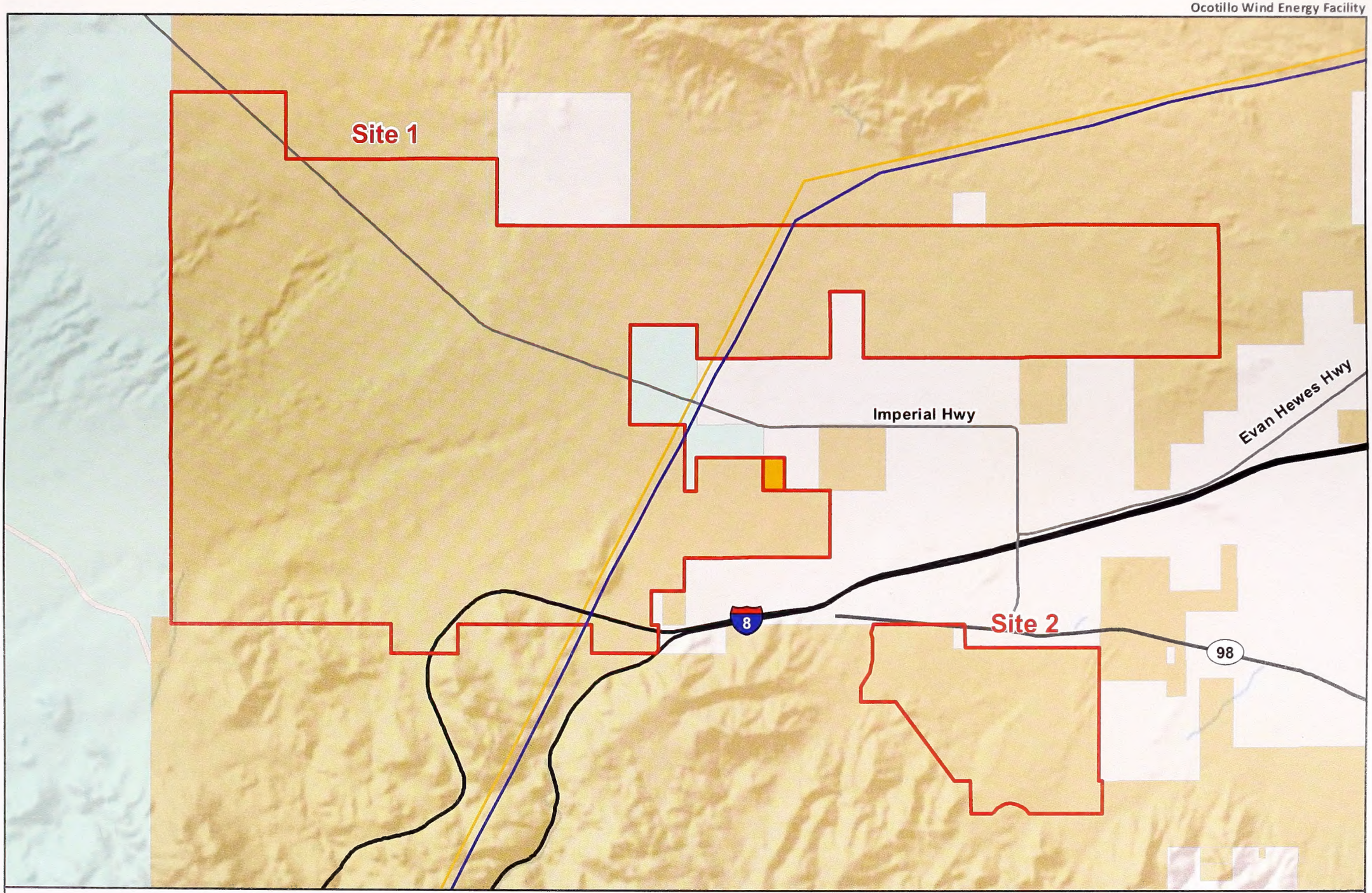


Figure 3.6-1

Land Ownership/Management

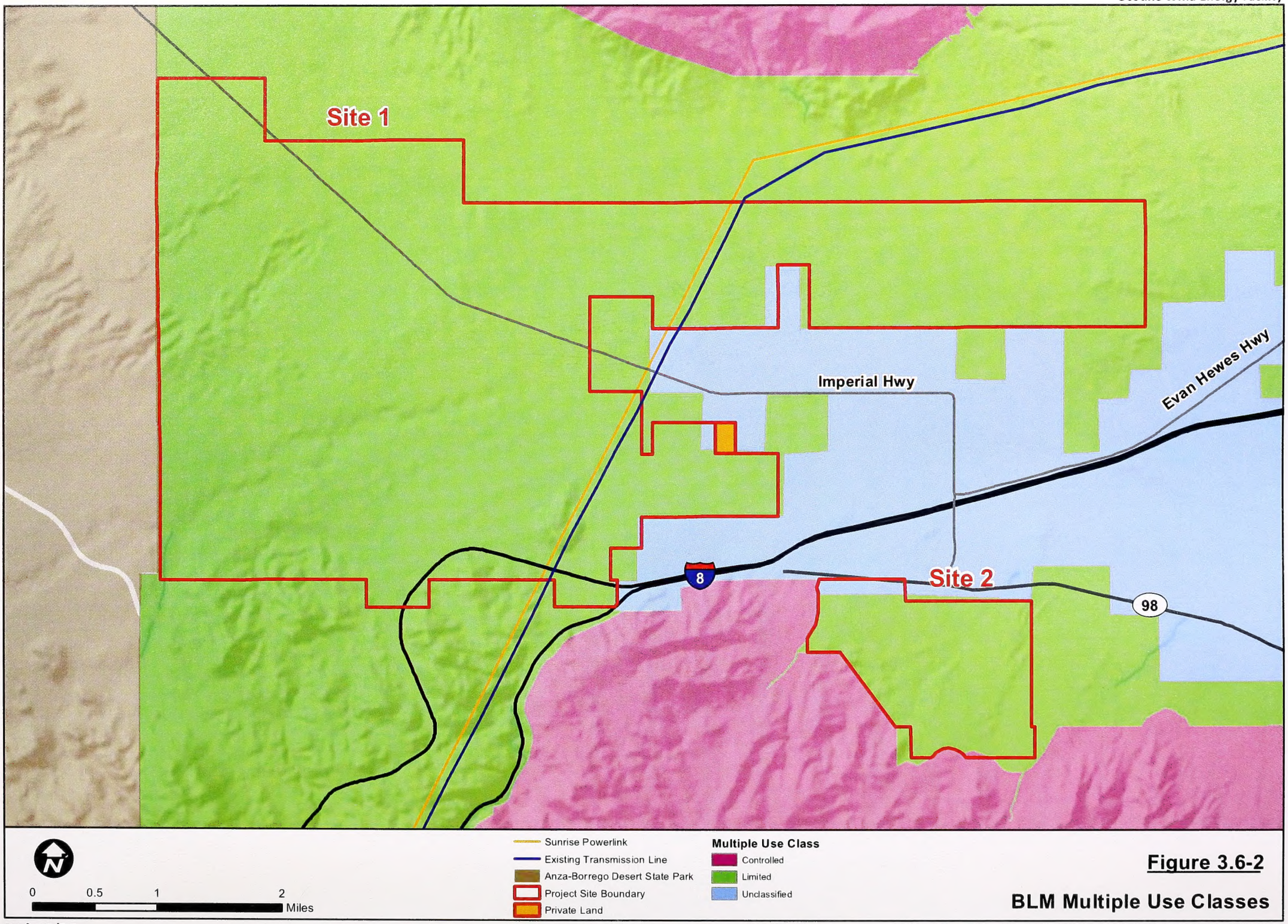


Figure 3.6-2

BLM Multiple Use Classes

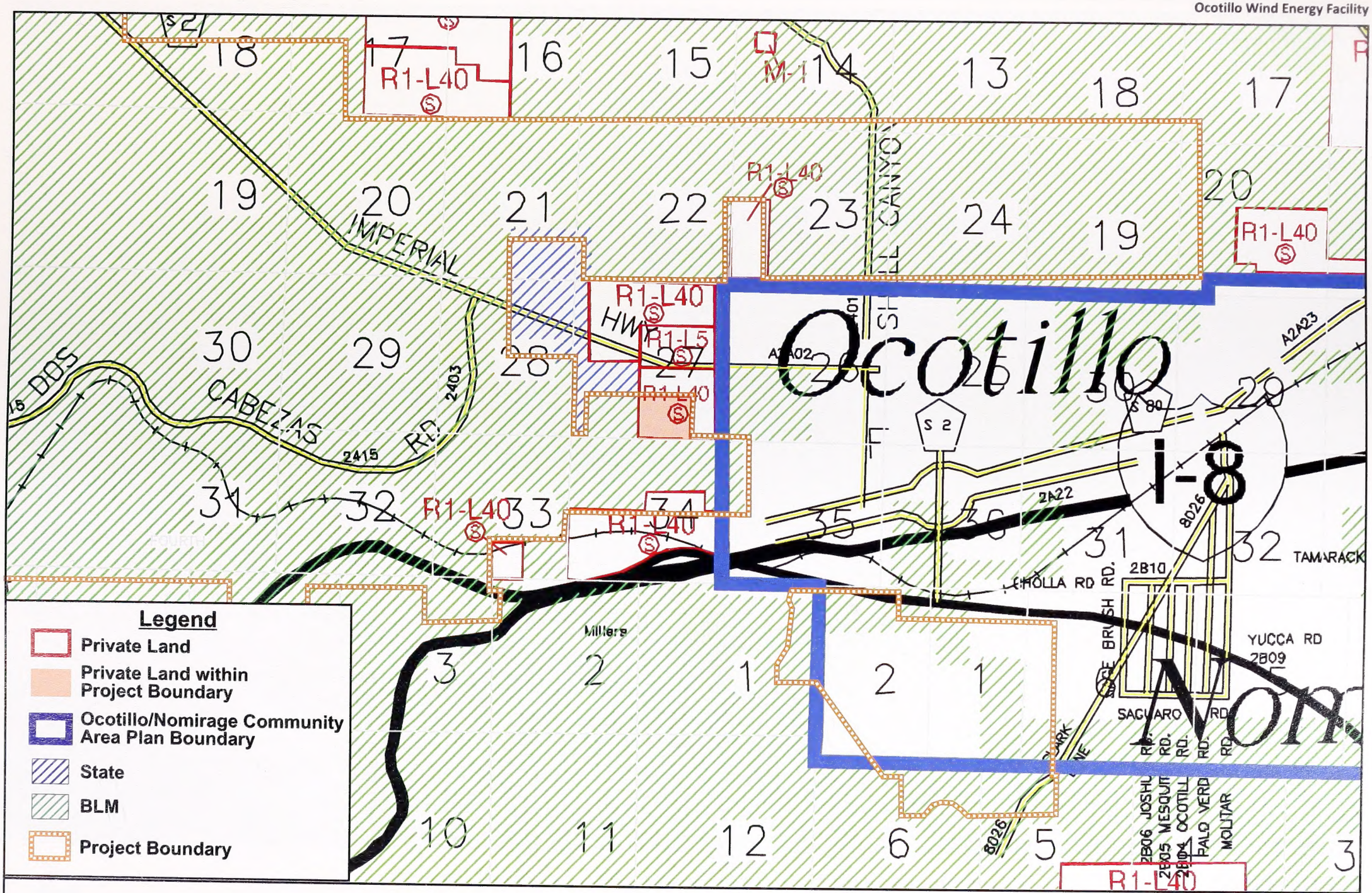
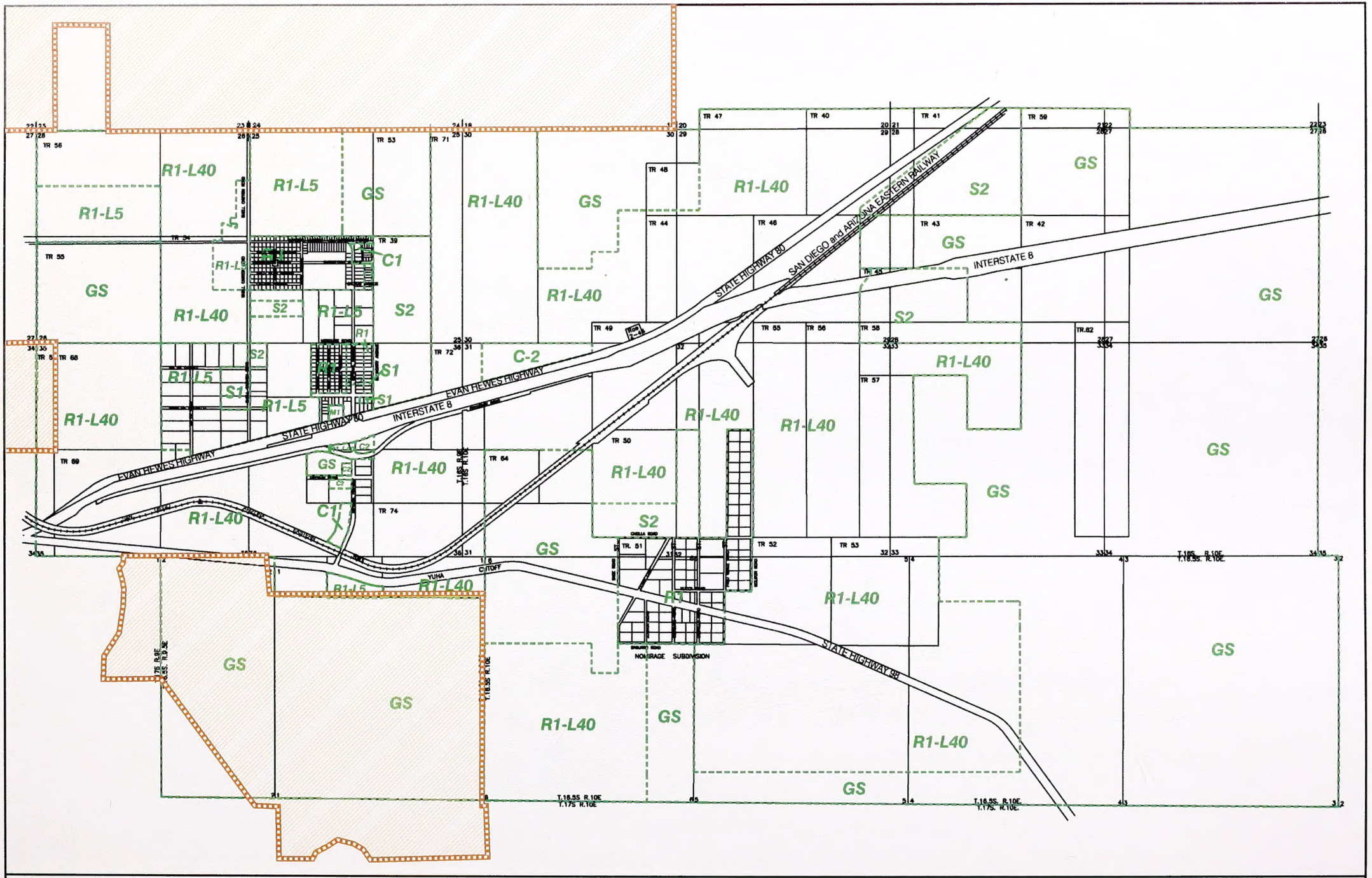


Figure 3.6-3a

Source: Imperial County, 2008a.

Imperial County Zoning

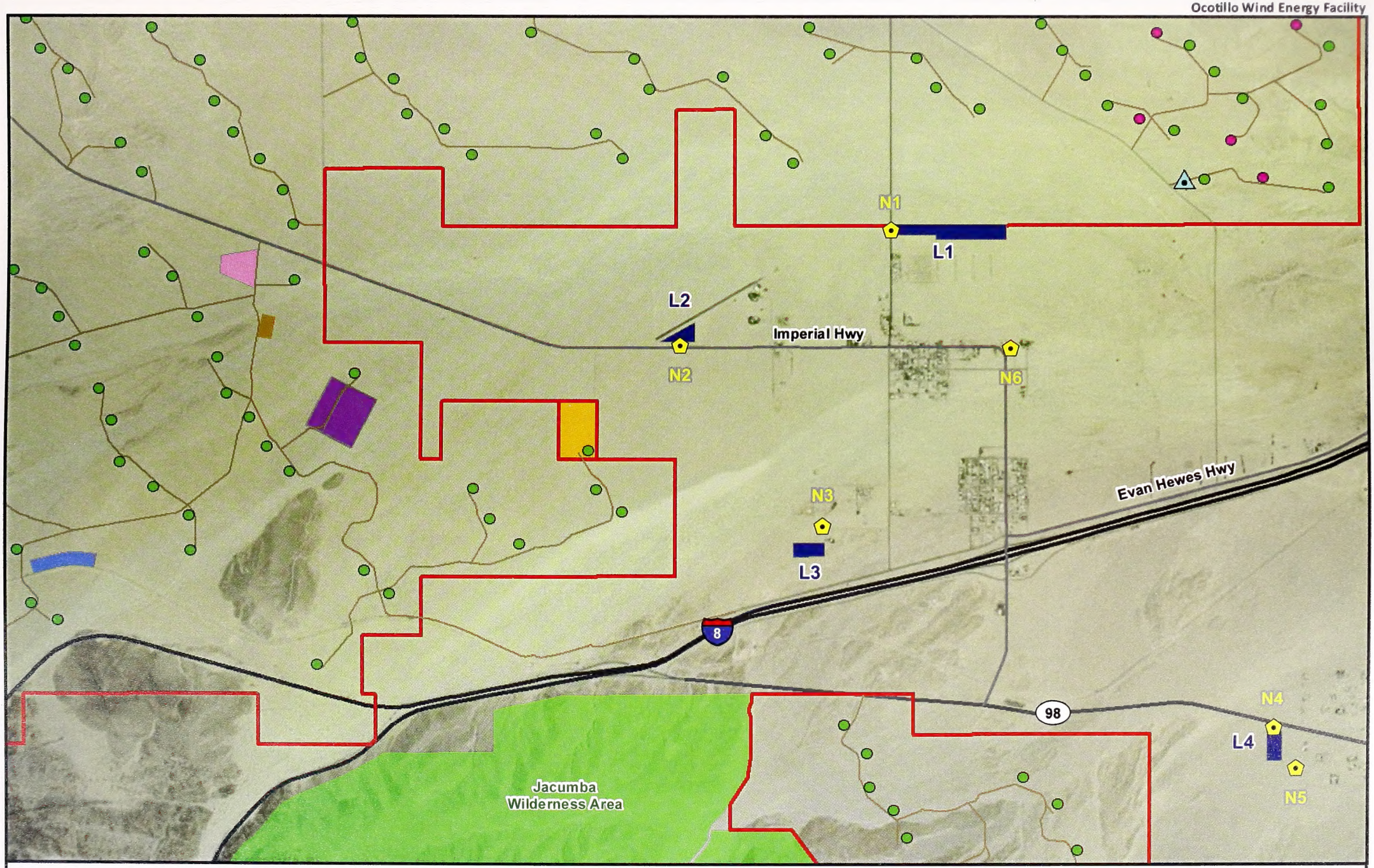


Project Boundary

Source: Imperial County, 2008a.

Figure 3.6-3b

Imperial County Zoning-Ocotillo Area

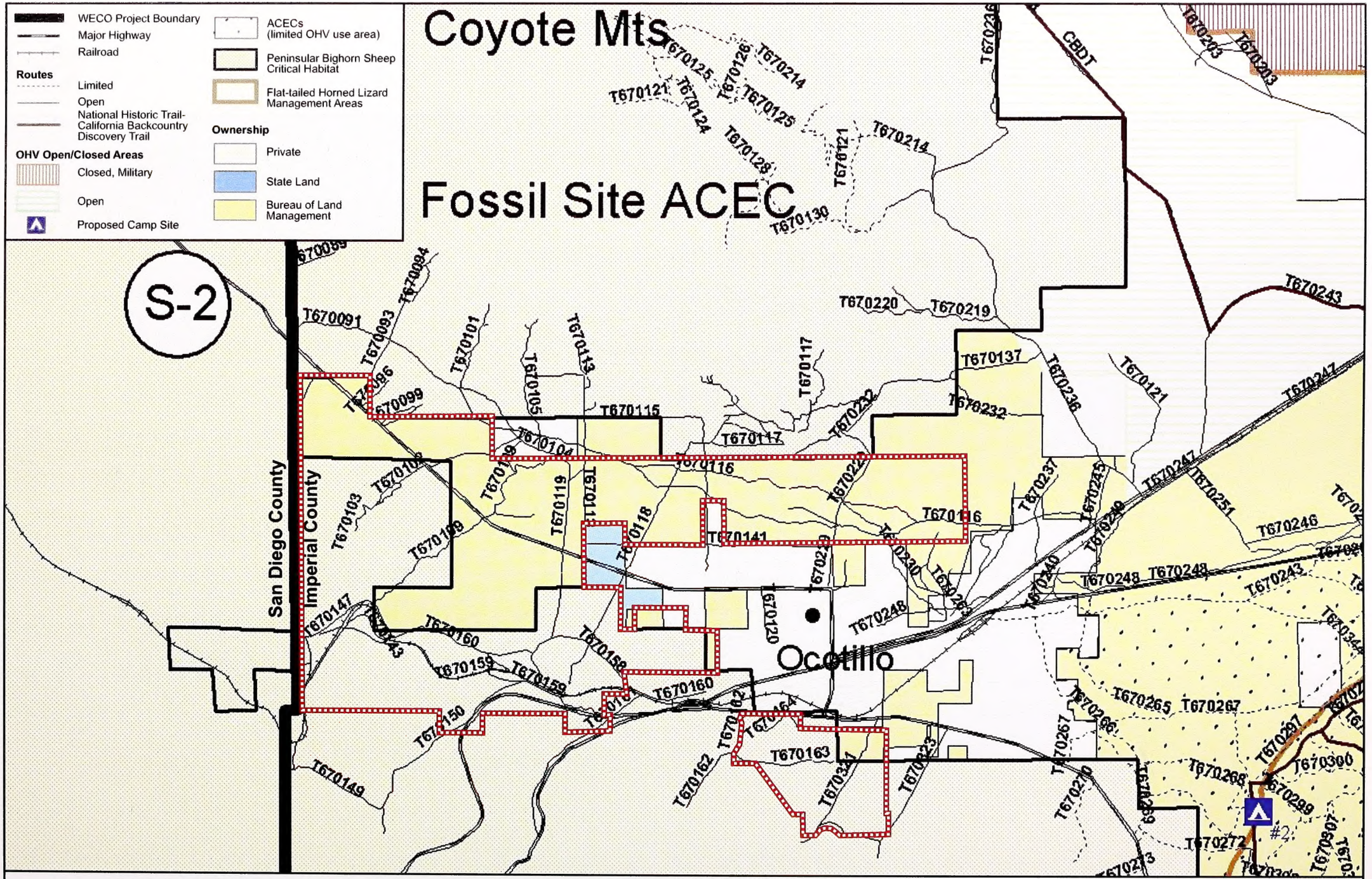


0 0.25 0.5 1 Miles

- Phase 1 Turbines
- Phase 2 Turbines
- Noise Measurement Location
- MET Towers
- Access Road
- Sensitive Receptors
- Substation/Switchyard
- O and M Yard
- Batch Plant and Laydown
- Rail Unloading Area
- Ocotillo Wind Energy Facility
- Private Land

Figure 3.10-3

Ambient Noise Measurement Locations



Source: BLM, 2002.

Figure 3.13-1
Western Colorado Route of Travel Open OHV Routes (WECO)

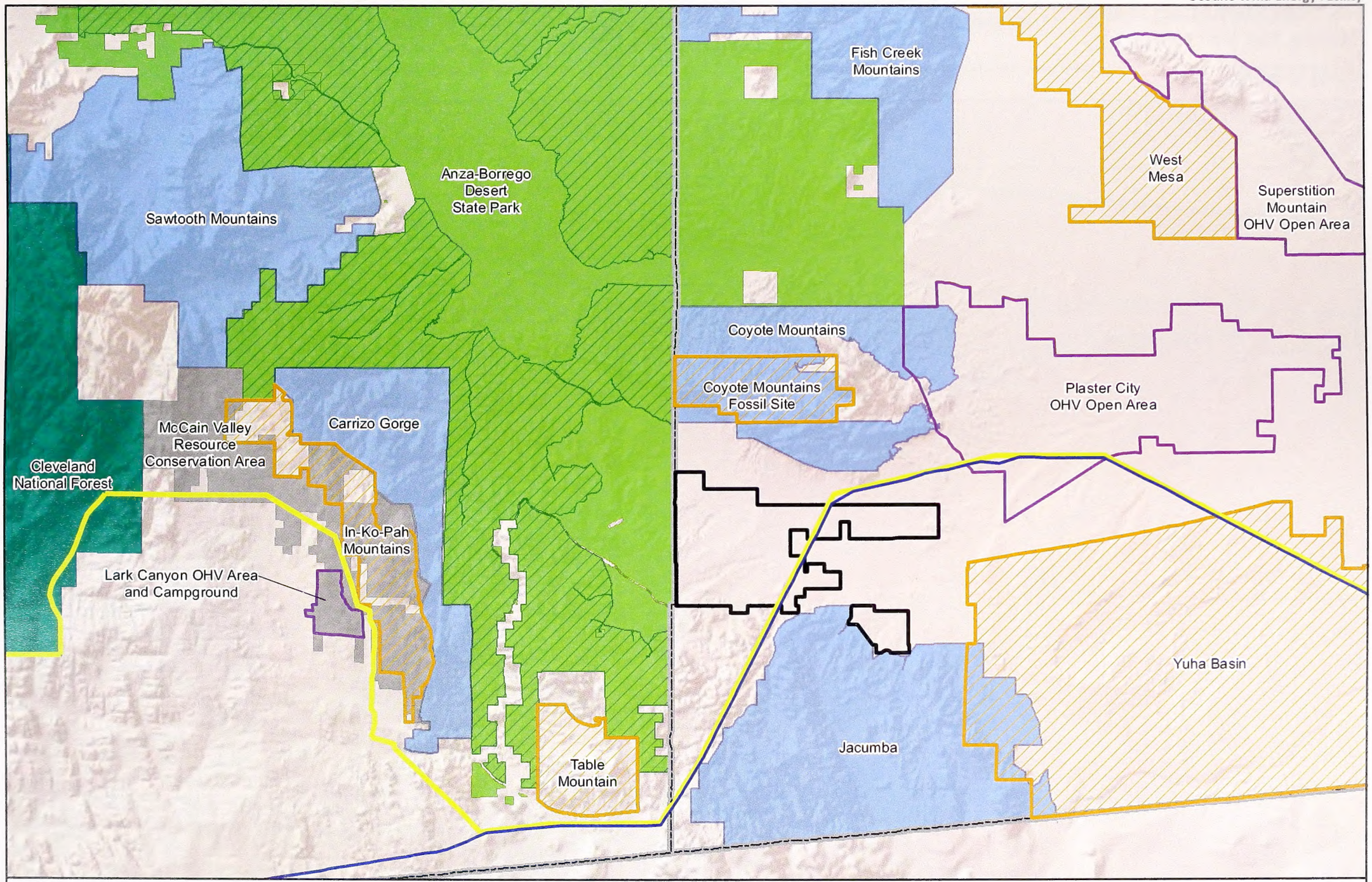


Figure 3.13-2

Regional Recreation Resources

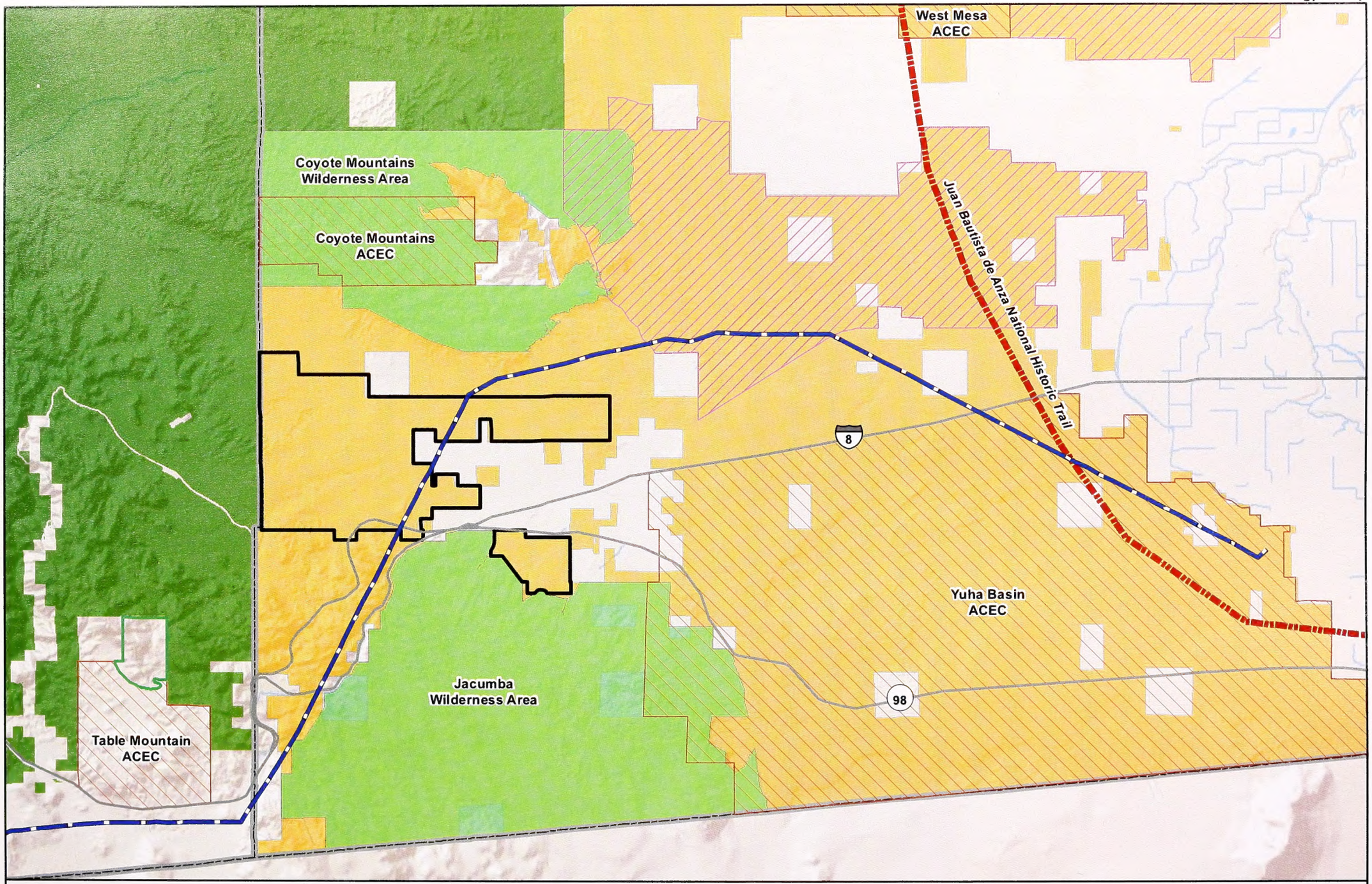


Figure 3.16-1

Special Land Use Areas within the Project Vicinity

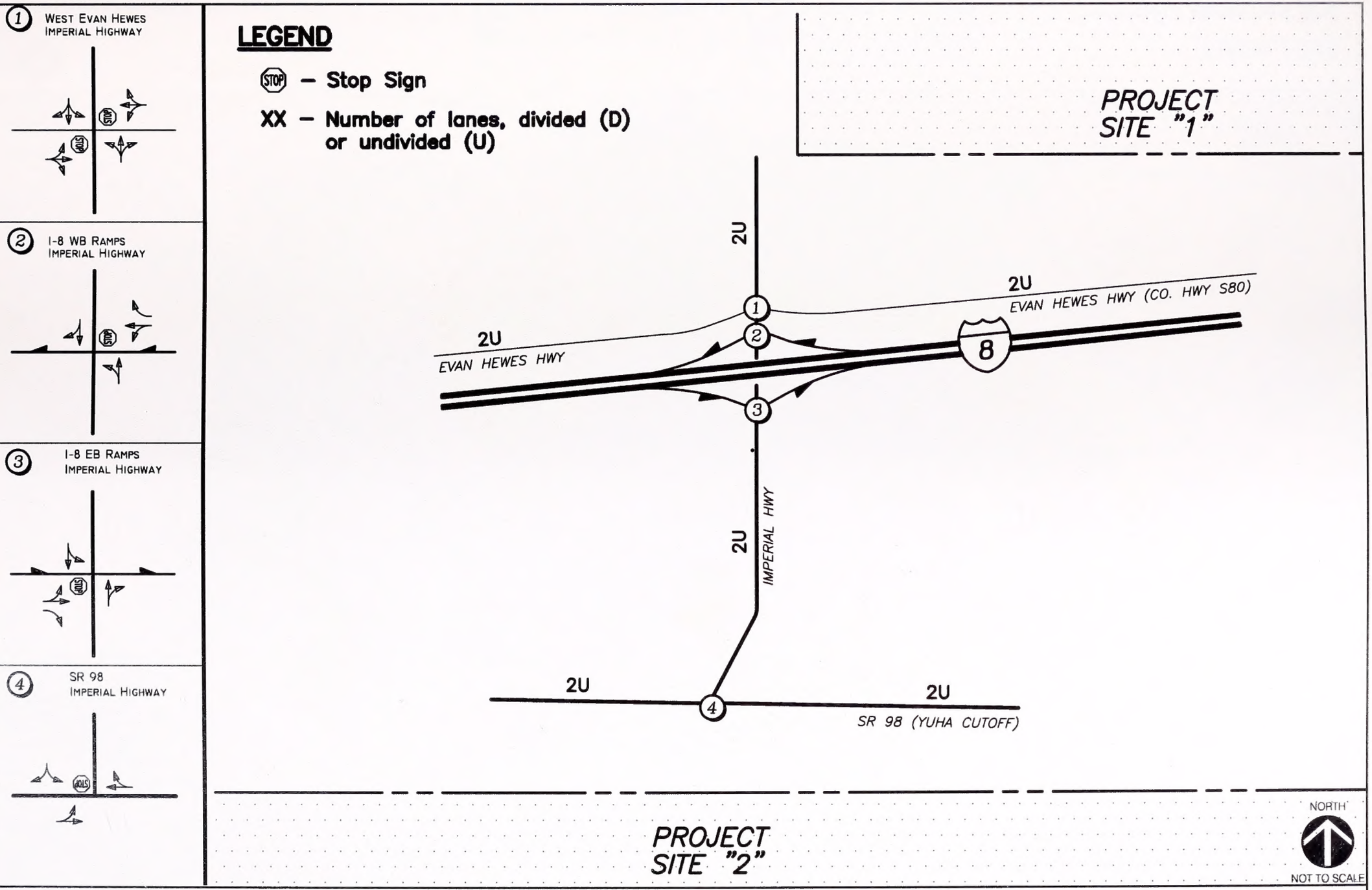


Figure 3.17-1

Existing Conditions Diagram

Source: Linscott Law & Greenspan Engineers, March 17, 2011.

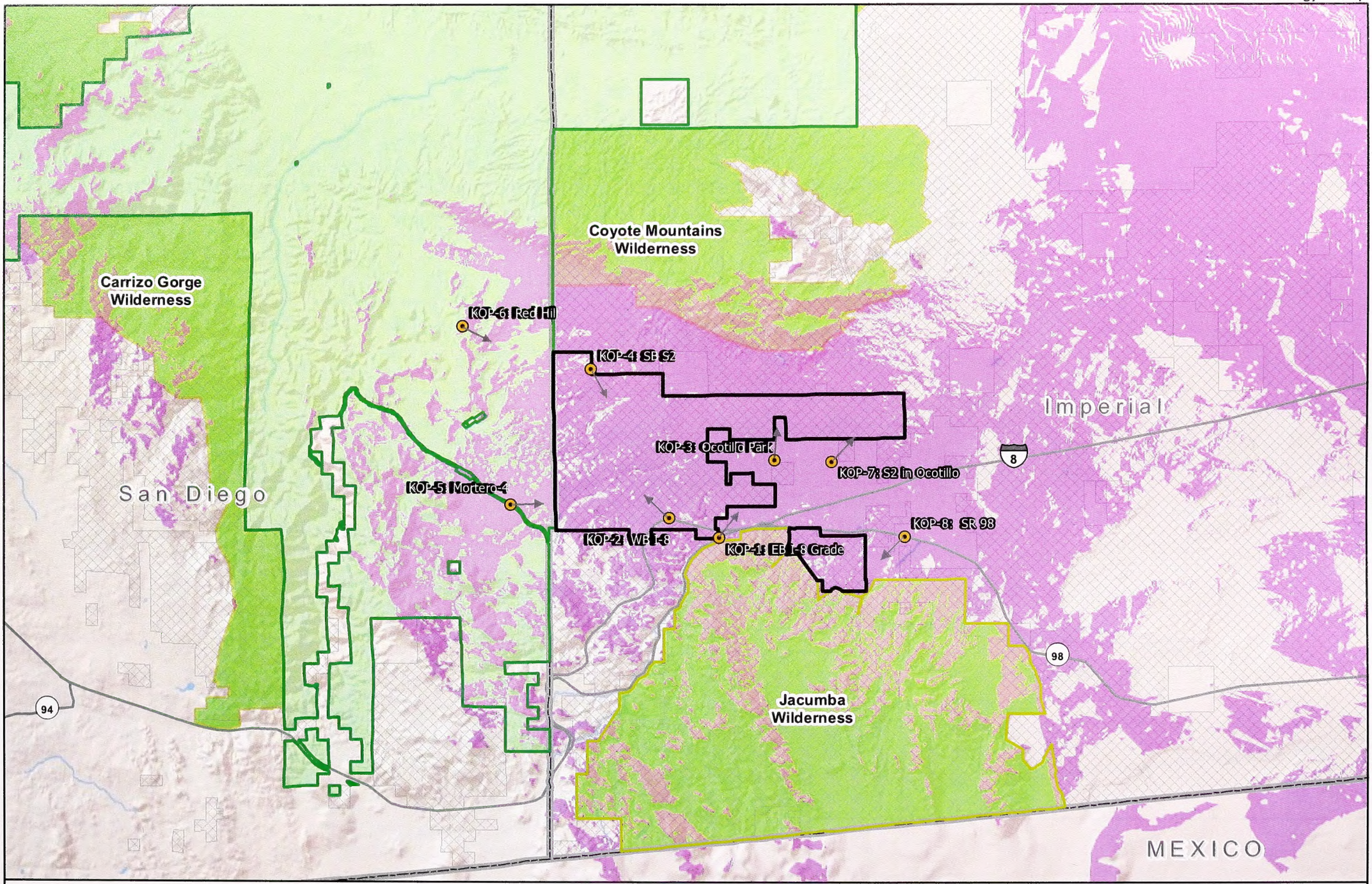


Figure 3.19-1

Project Viewshed Map

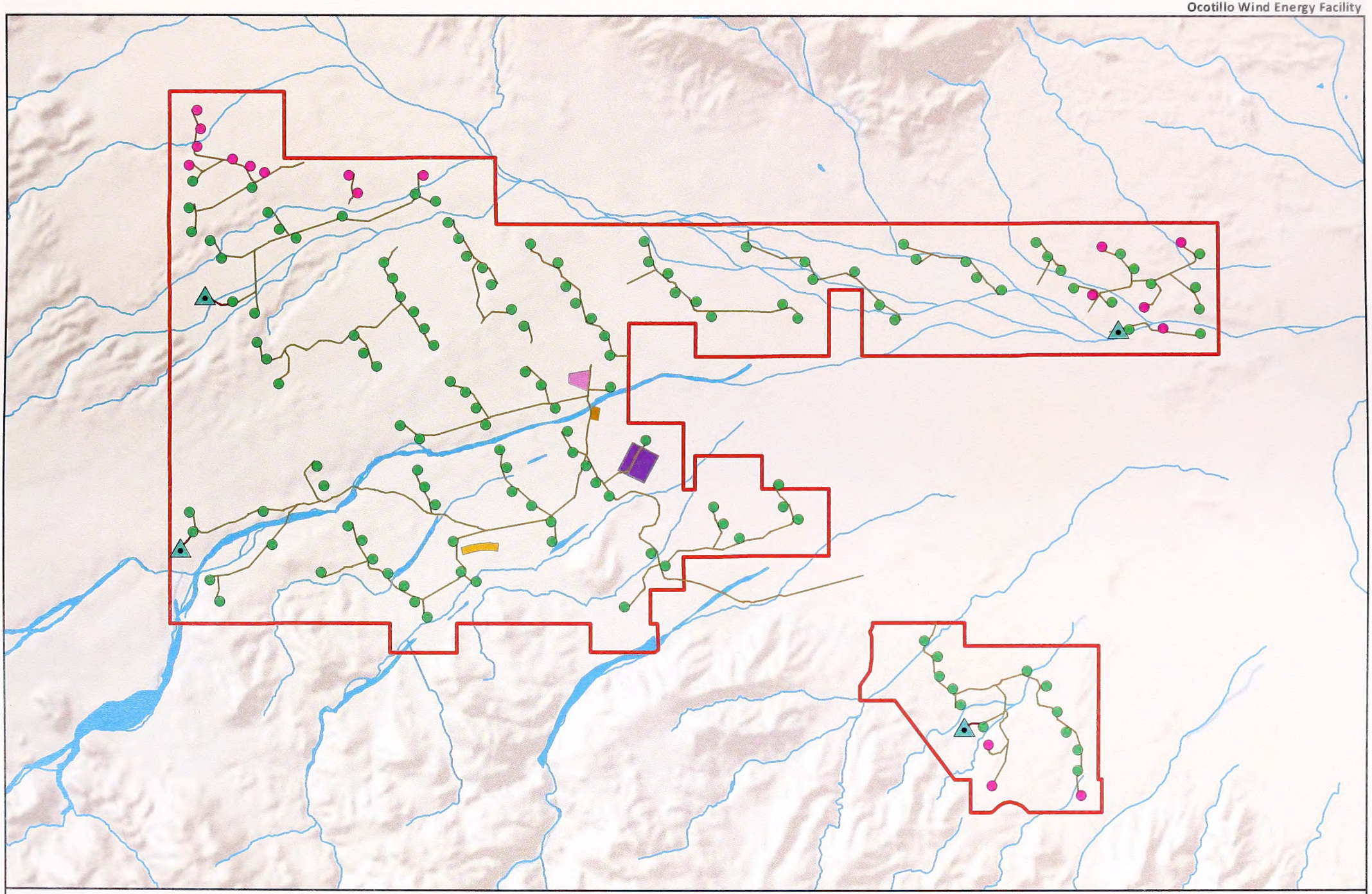


Figure 3.20-1

Surface Waters and Wetlands

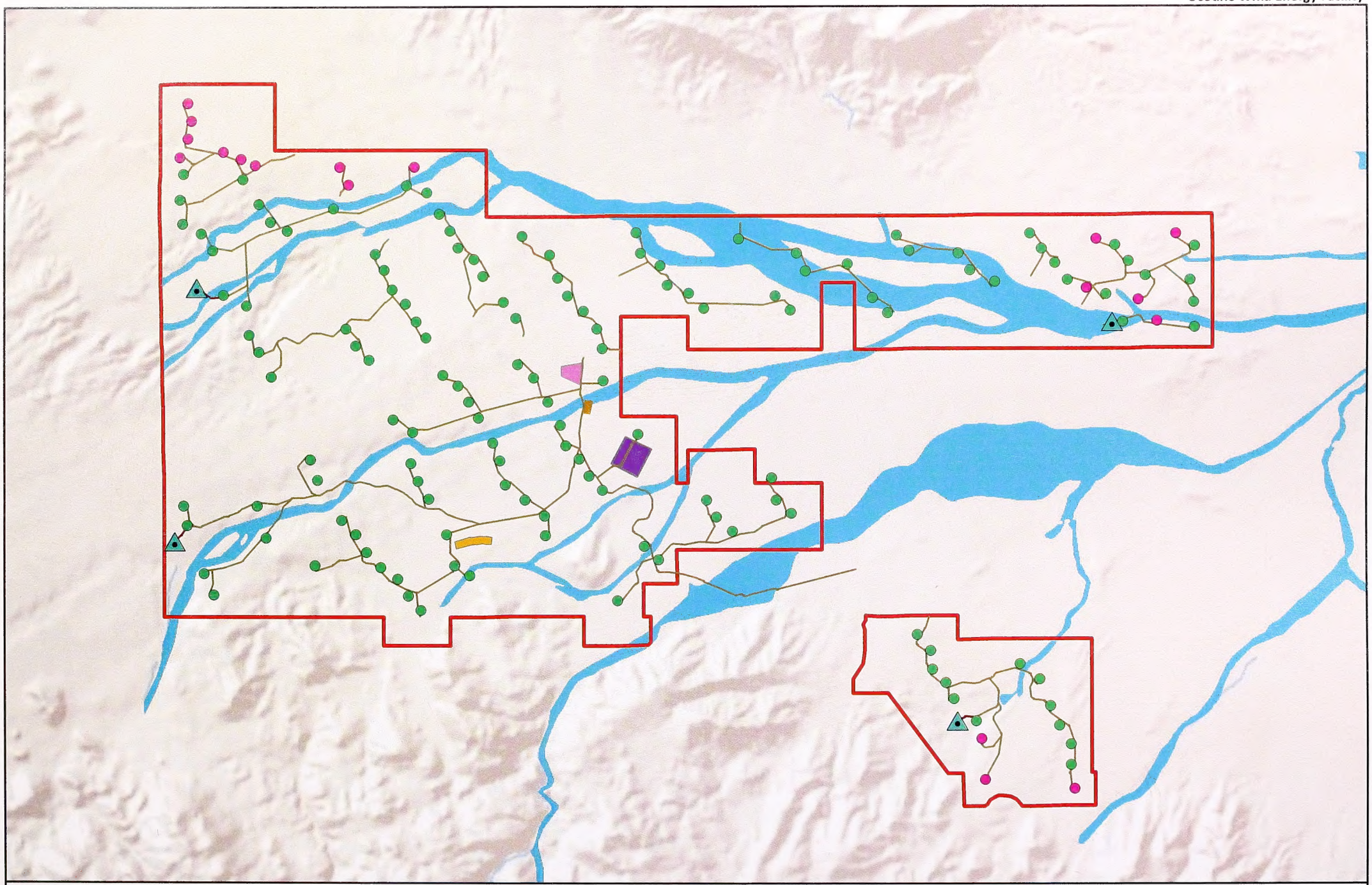


Figure 3.20-2

FEMA-Designated Flood Hazard Areas

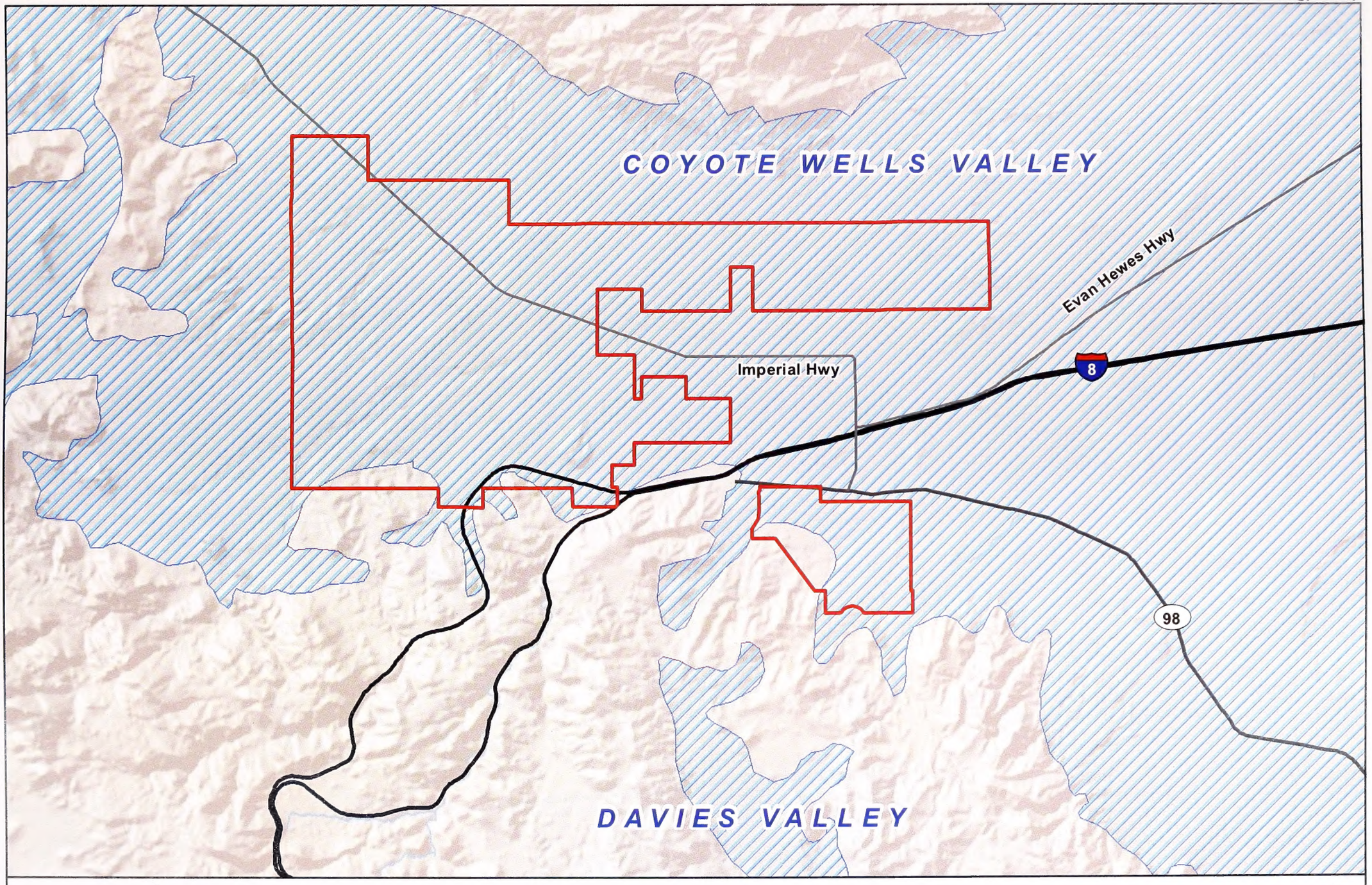


Figure 3.20-3

Groundwater Resources

Notes and Explanation:

The Ocotillo-Coyote Wells Sole Source Aquifer was designated under the authority of Section 1424(e) of the Safe Drinking Water Act, Federal Register Citation- 61 FR 47752, Publication Date- 09/10/96. Please contact US EPA Region IX (Hillary Hecht, 415.972.3530) for assistance in determining place locations with respect to the project review area.

Map Status and Disclaimer:

Please note that this working map is a computer representation compiled by the Environmental Protection Agency (EPA) from sources which have supplied data or information that may have not been verified by the EPA. This data is offered here as a general representation only, and is not to be used for commercial purposes without verification by an independent professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.

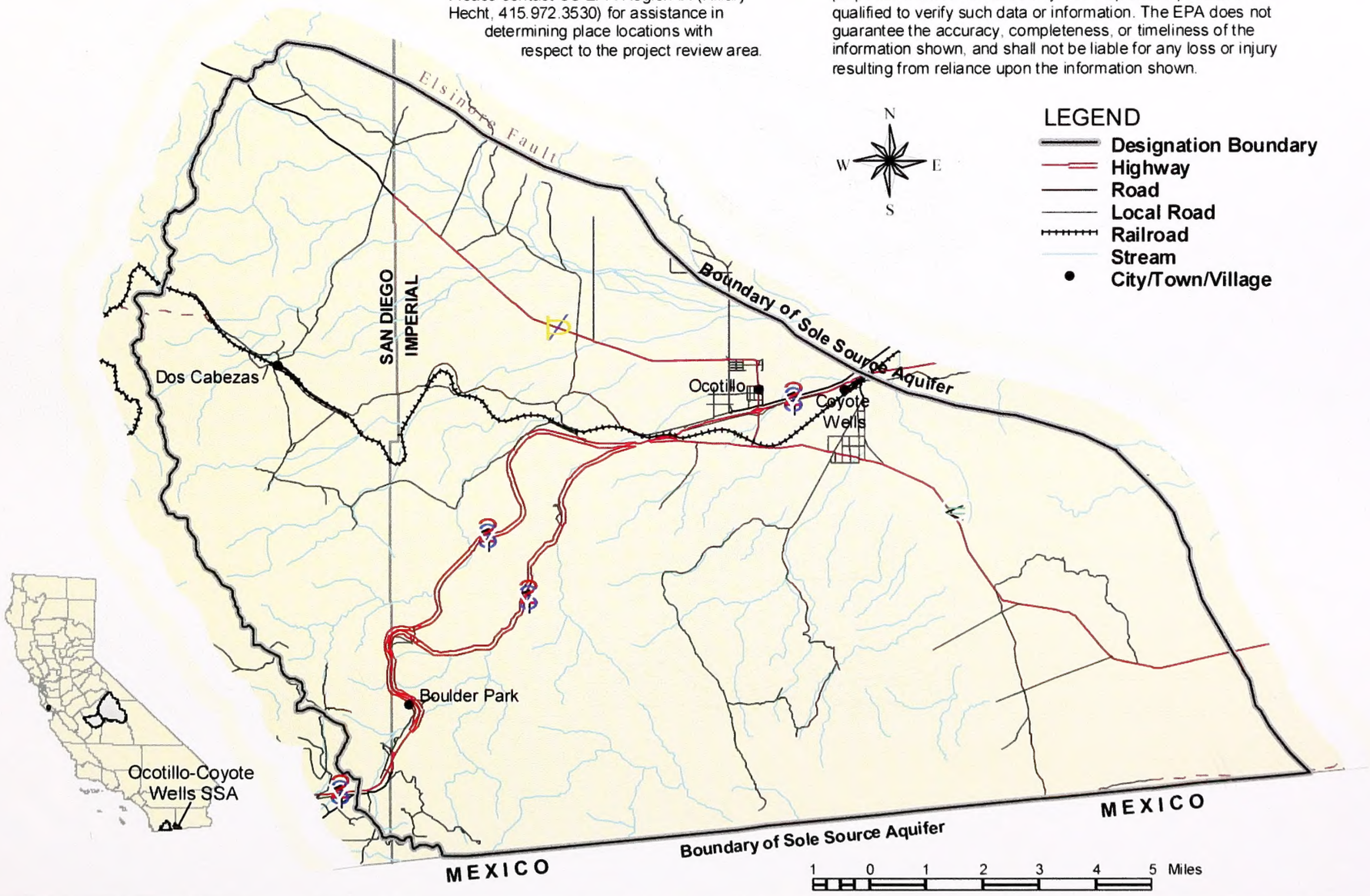


Figure 3.20-4

Ocotillo-Coyote Wells SSA Surface Recharge Area

Source: EPA, 2001.

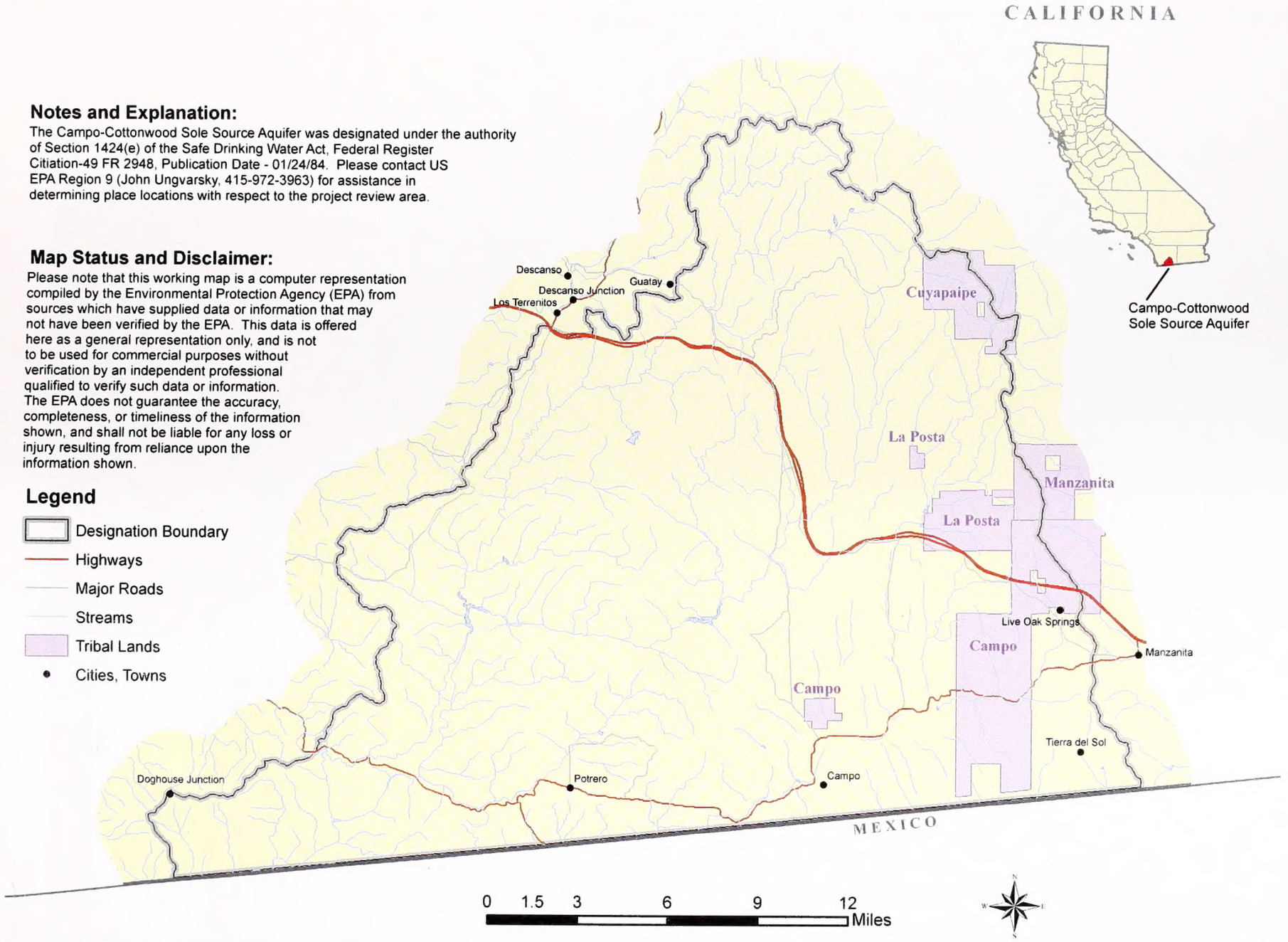
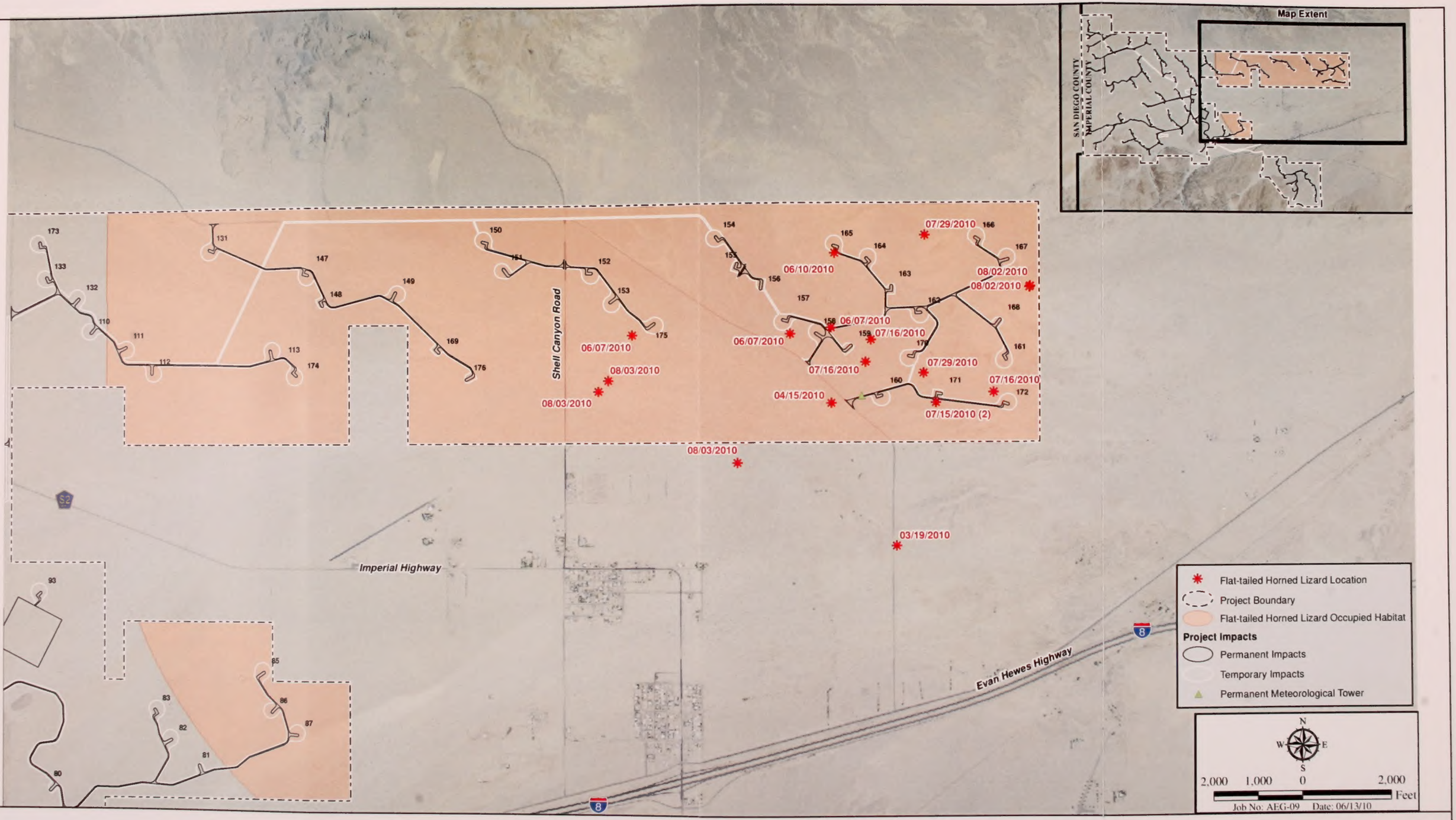


Figure 3.20-5

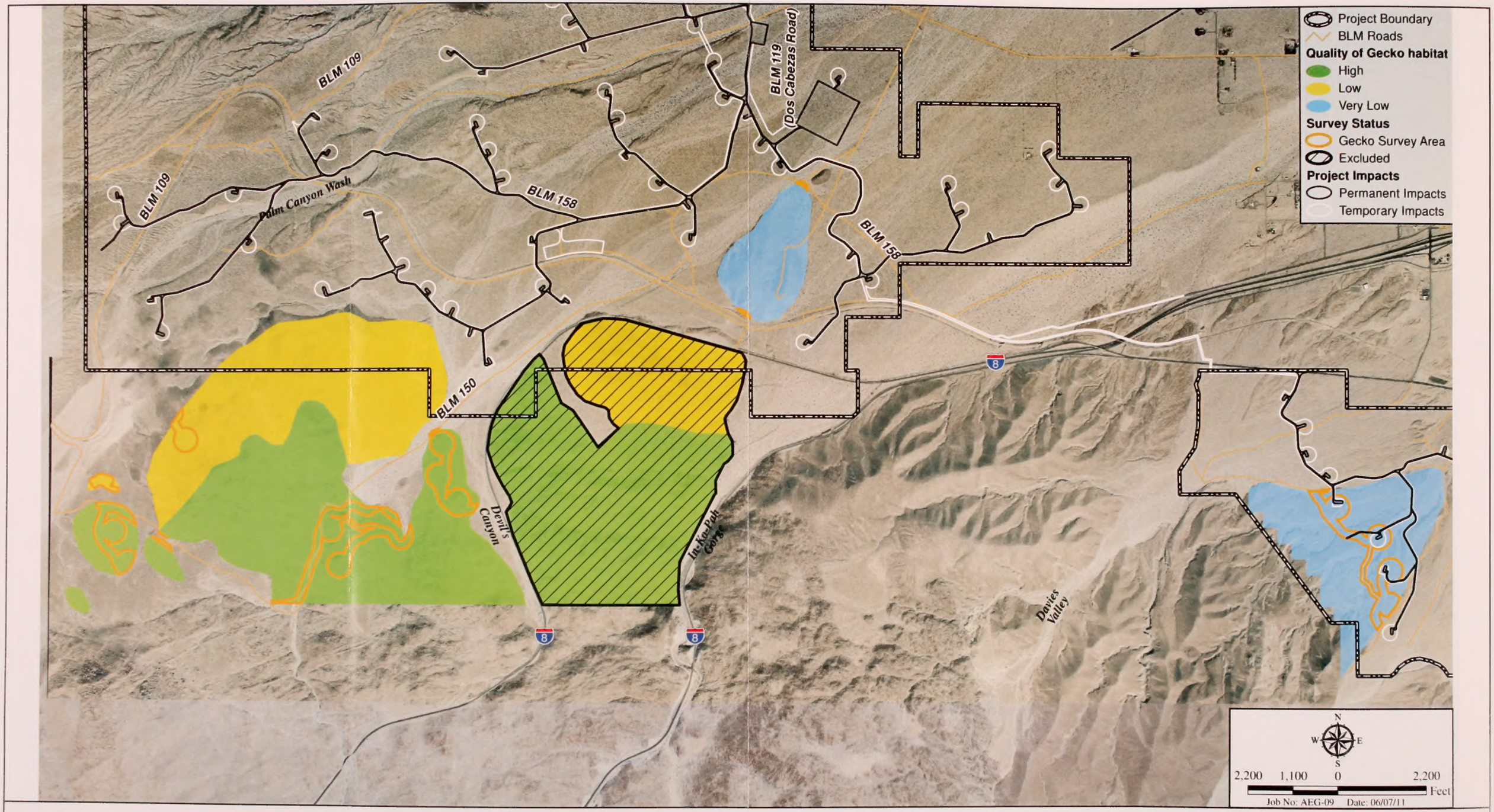
Campo-Cottonwood SSA Surface Recharge Area

Source: EPA, 2001.



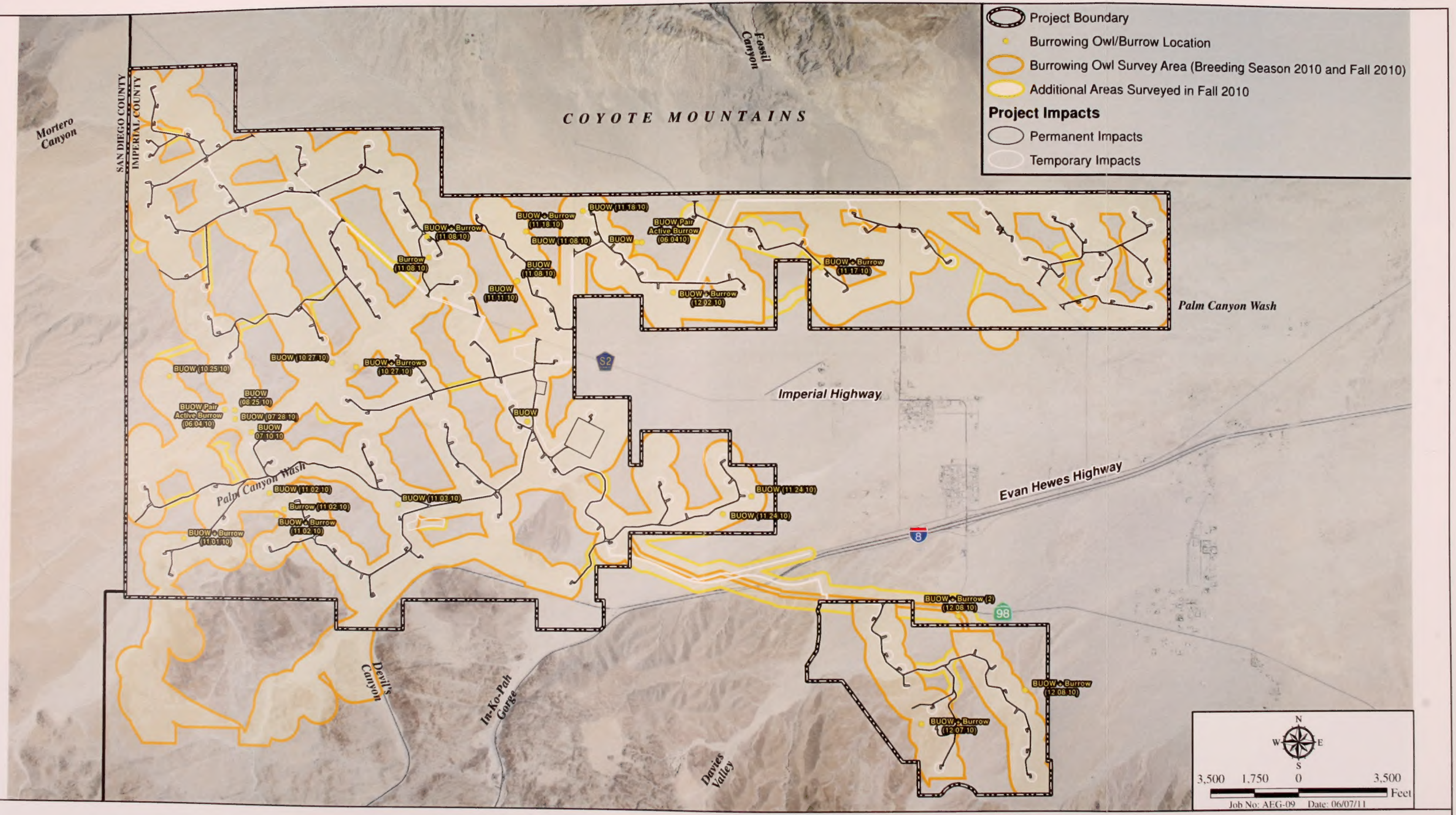
Source: Helix, 2011.

Figure 3.23-1
Flat-tailed Horned Lizard Locations and Occupied Habitat



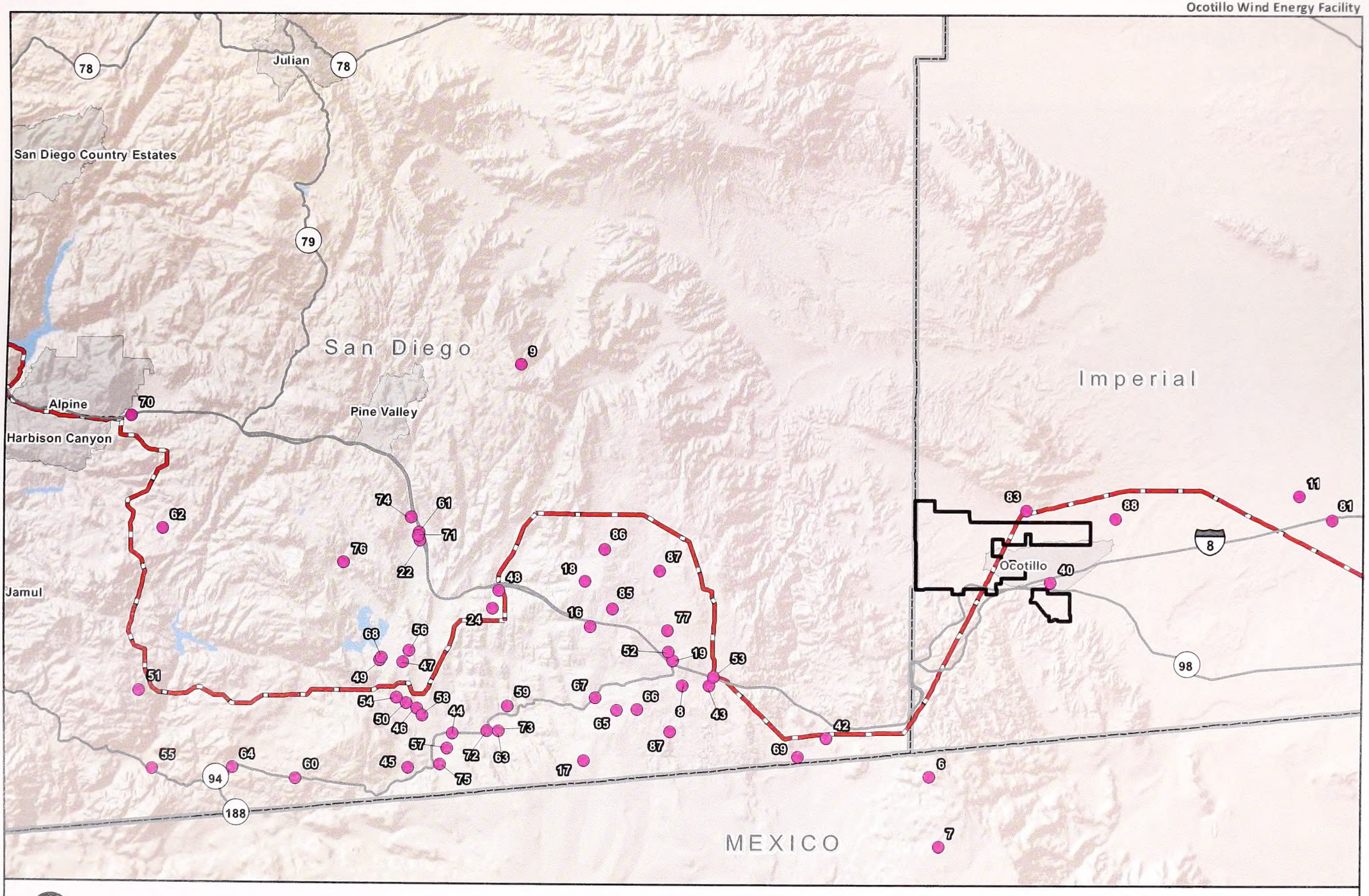
Source: Helix, 2011.

Figure 3.23-2
Barefoot Banded Gecko Survey Areas



Source: Helix, 2011.

Figure 3.23-3
Burrowing Owl Survey Areas and Locations



Cumulative Projects
Sunrise Powerlink
Ocotillo Wind Energy Facility

0 3 6 12 Miles

Figure 4.1-1a

Cumulative Projects

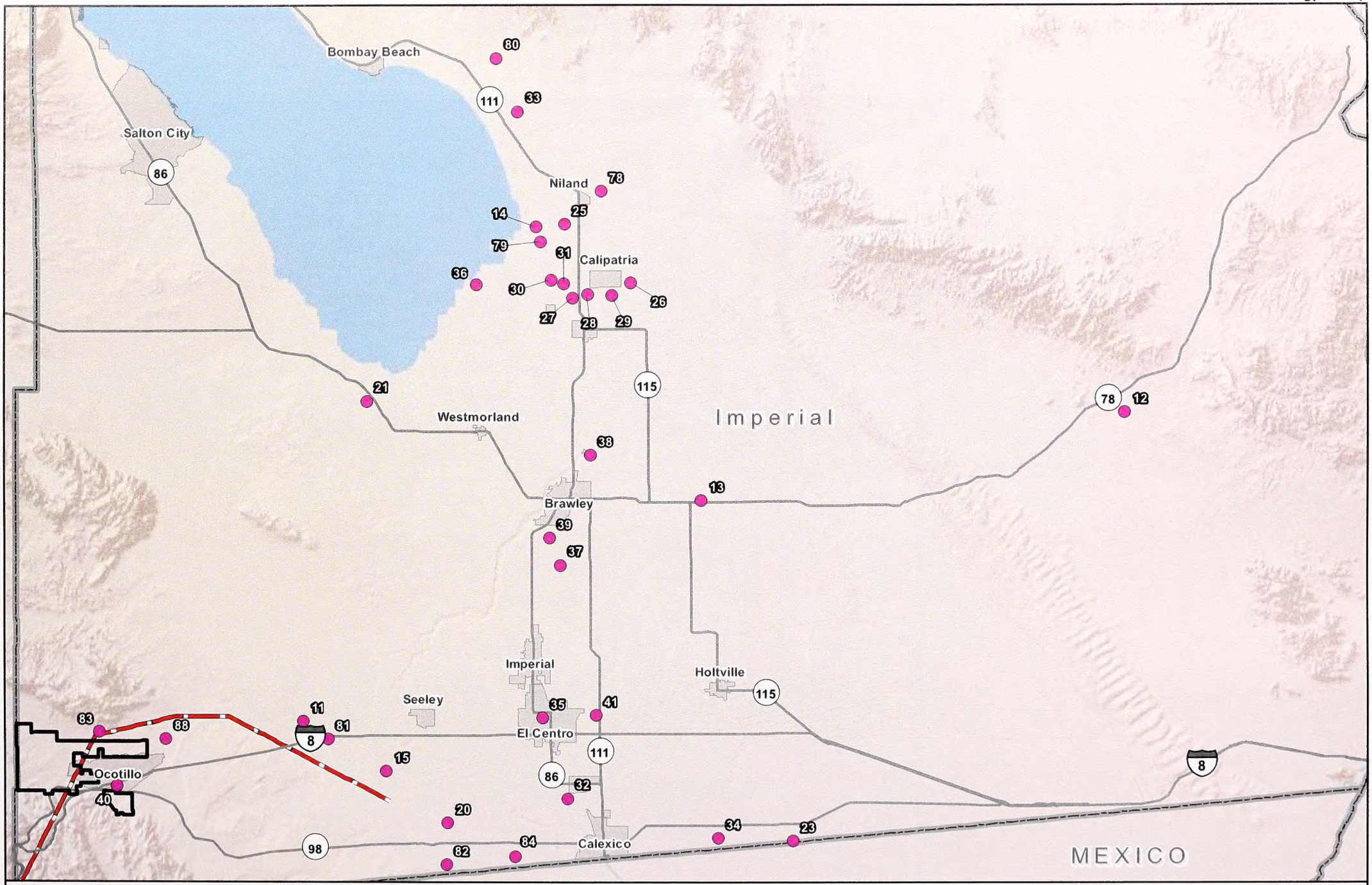


Figure 4.1-1b

Cumulative Projects

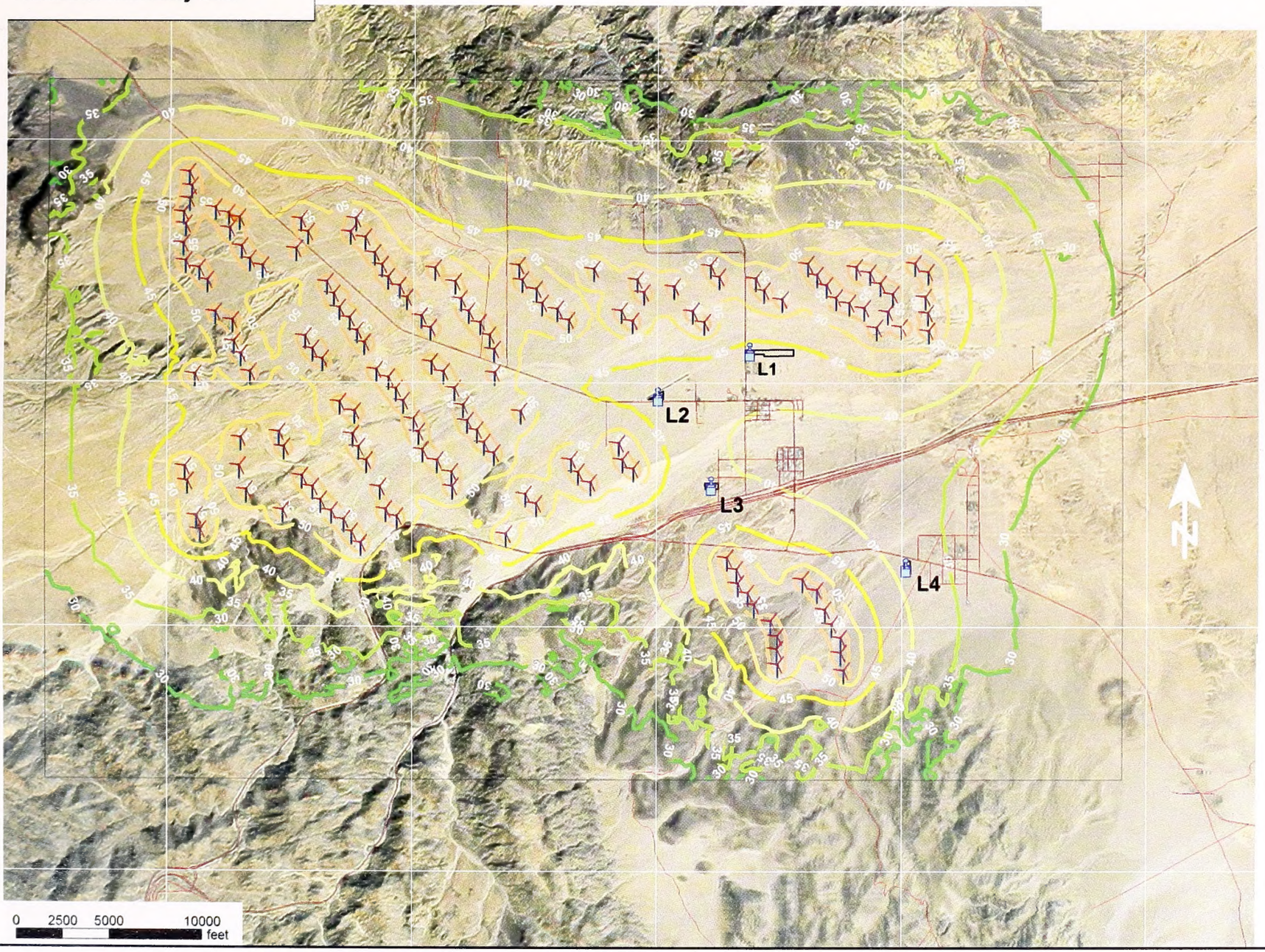


Figure 4.9-1

Alternative 1
Noise Contour Map Scenario 1

Source: Navcon, 2011.

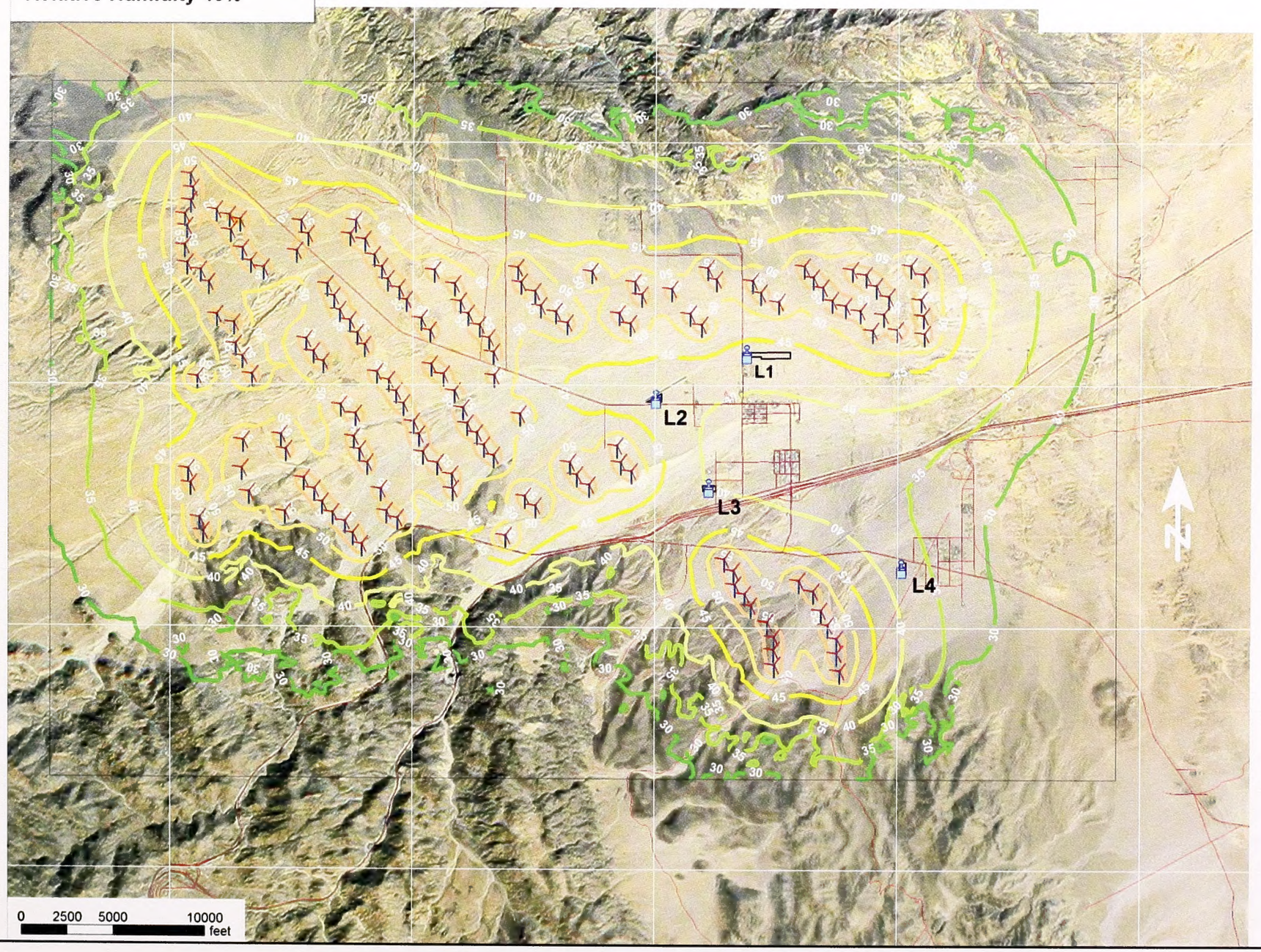


Figure 4.9-2

Alternative 1
Noise Contour Map Scenario 2

Source: Navcon, 2011.

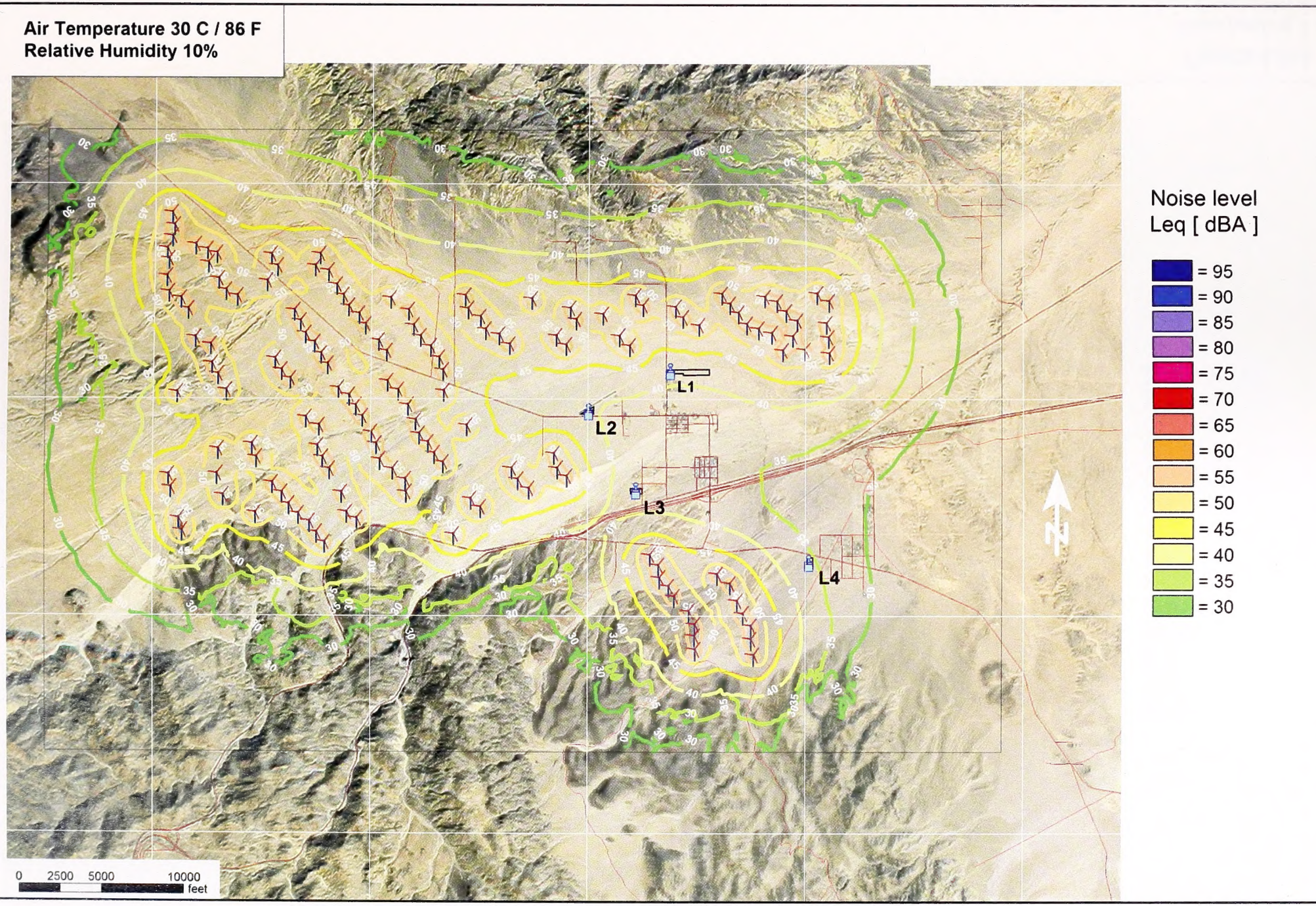


Figure 4.9-3

Alternative 1
Noise Contour Map Scenario 3

Source: Navcon, 2011.

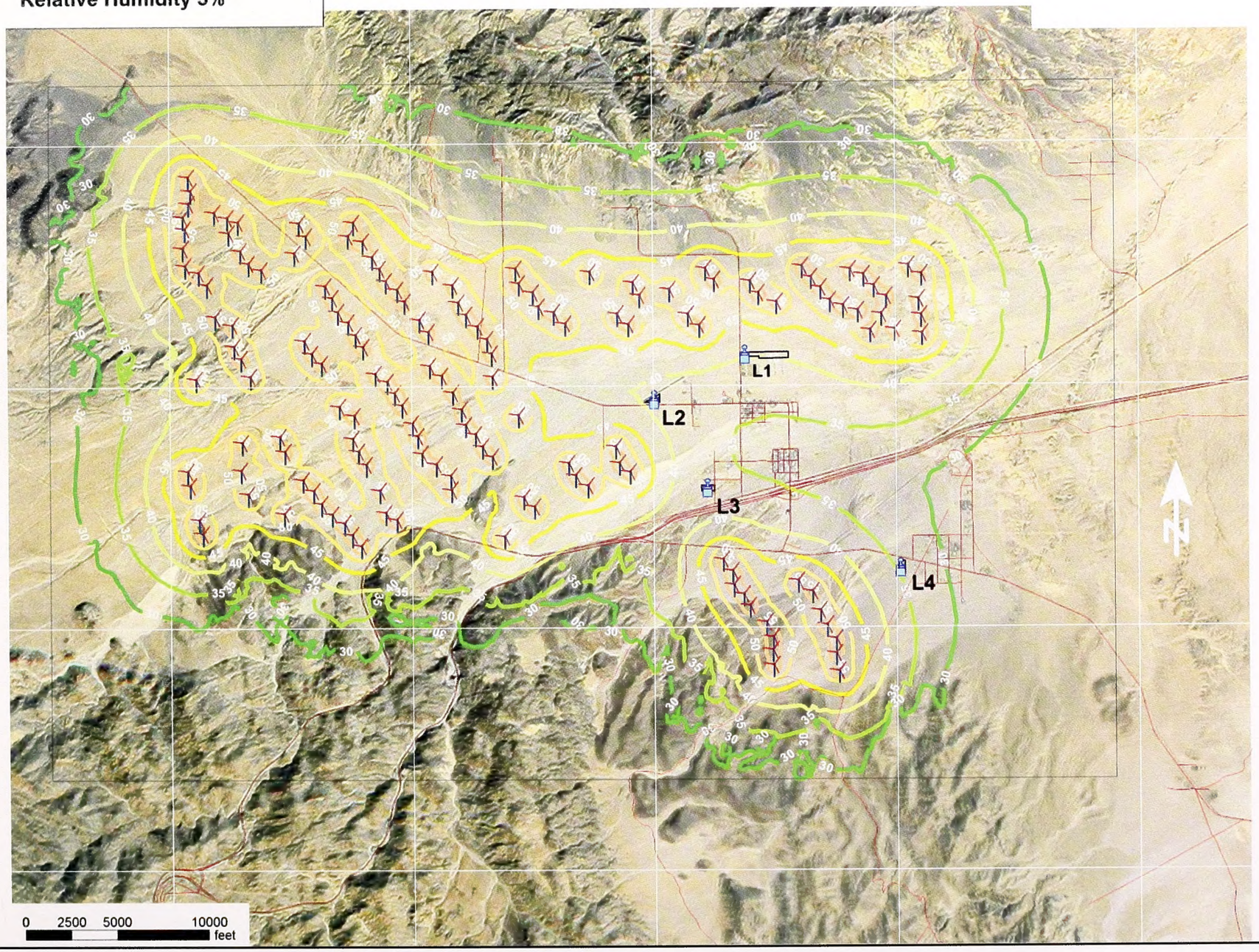
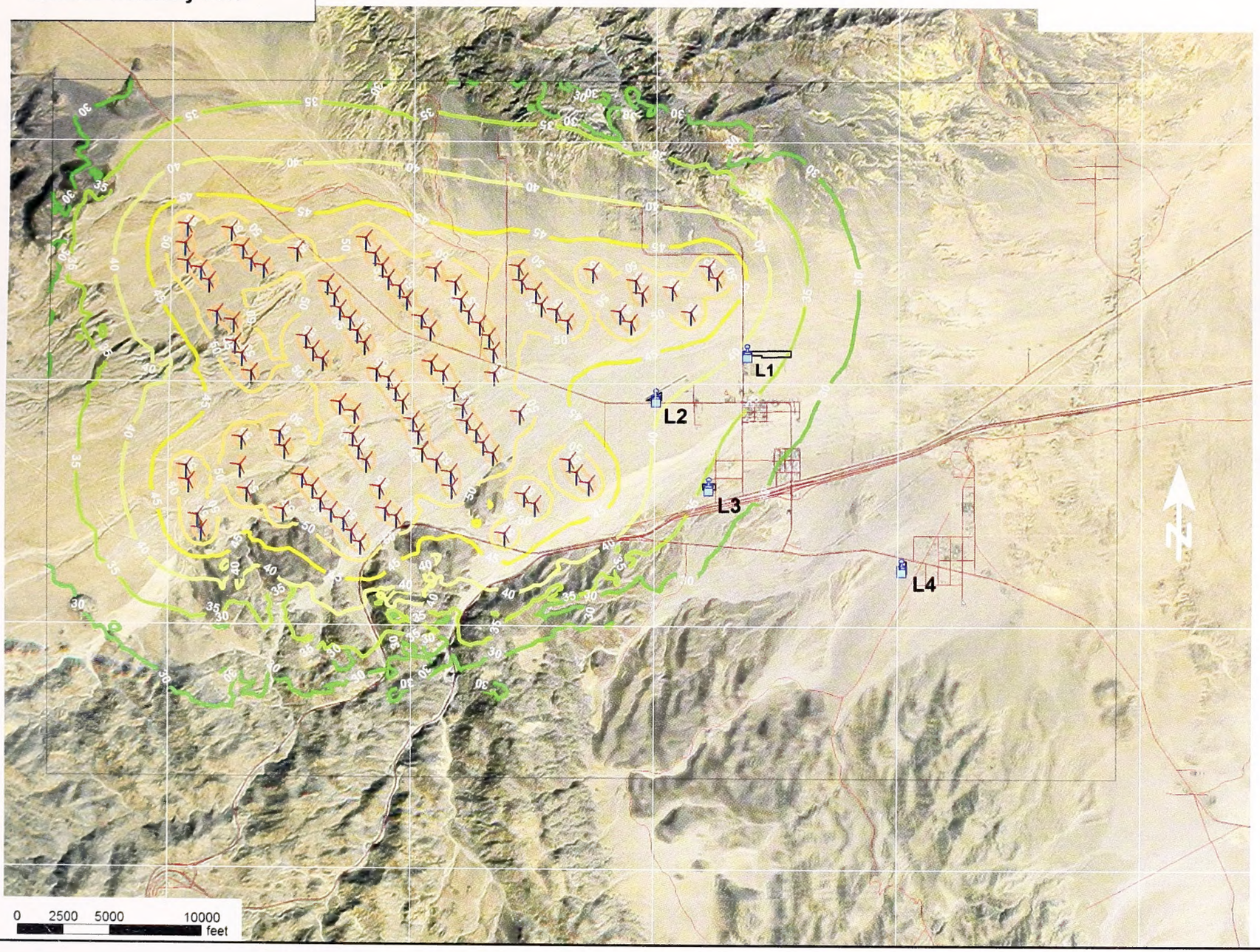


Figure 4.9-4

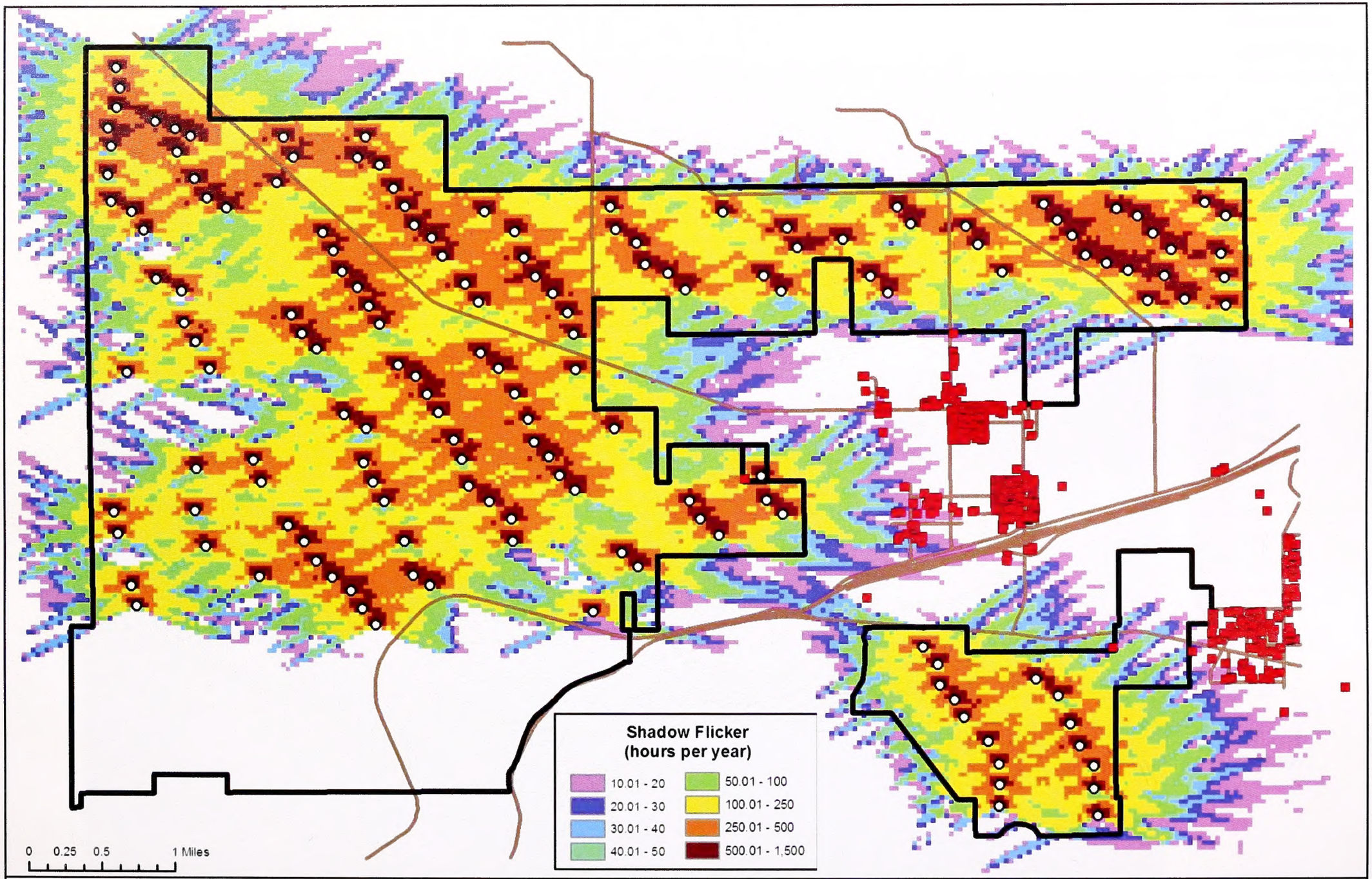
Alternative 1
Noise Contour Map Scenario 4

Source: Navcon, 2011.



Source: Navcon, 2011.

Figure 4.9-5
Alternative 3
Noise Contour Map Scenario 1



Source: Draft Plan of Development prepared by Pattern Energy, March 2011.

Figure 4.11-1

Shadow Flicker Analysis for the Ocotillo Wind Energy Facility

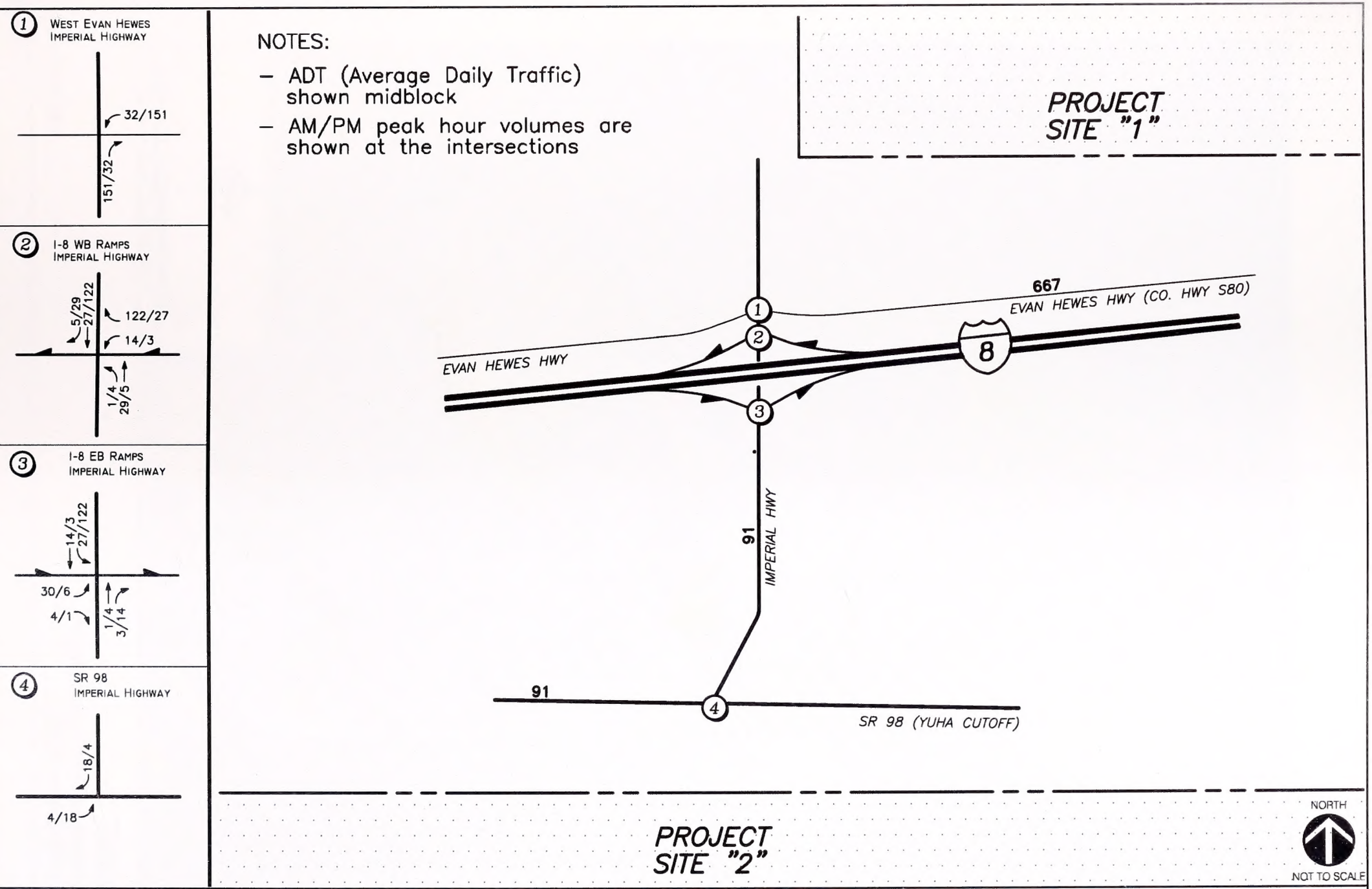
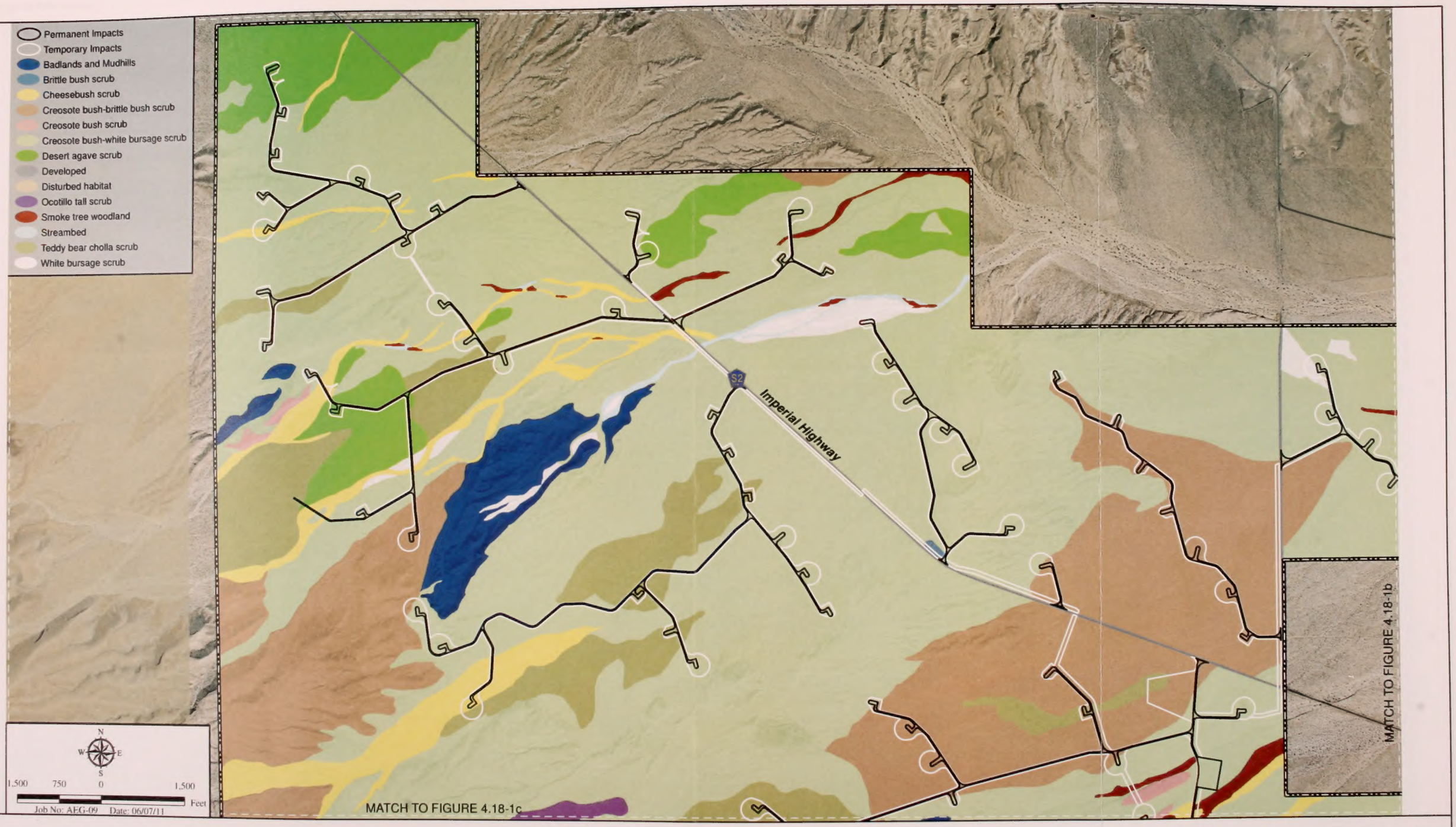


Figure 4.16-1

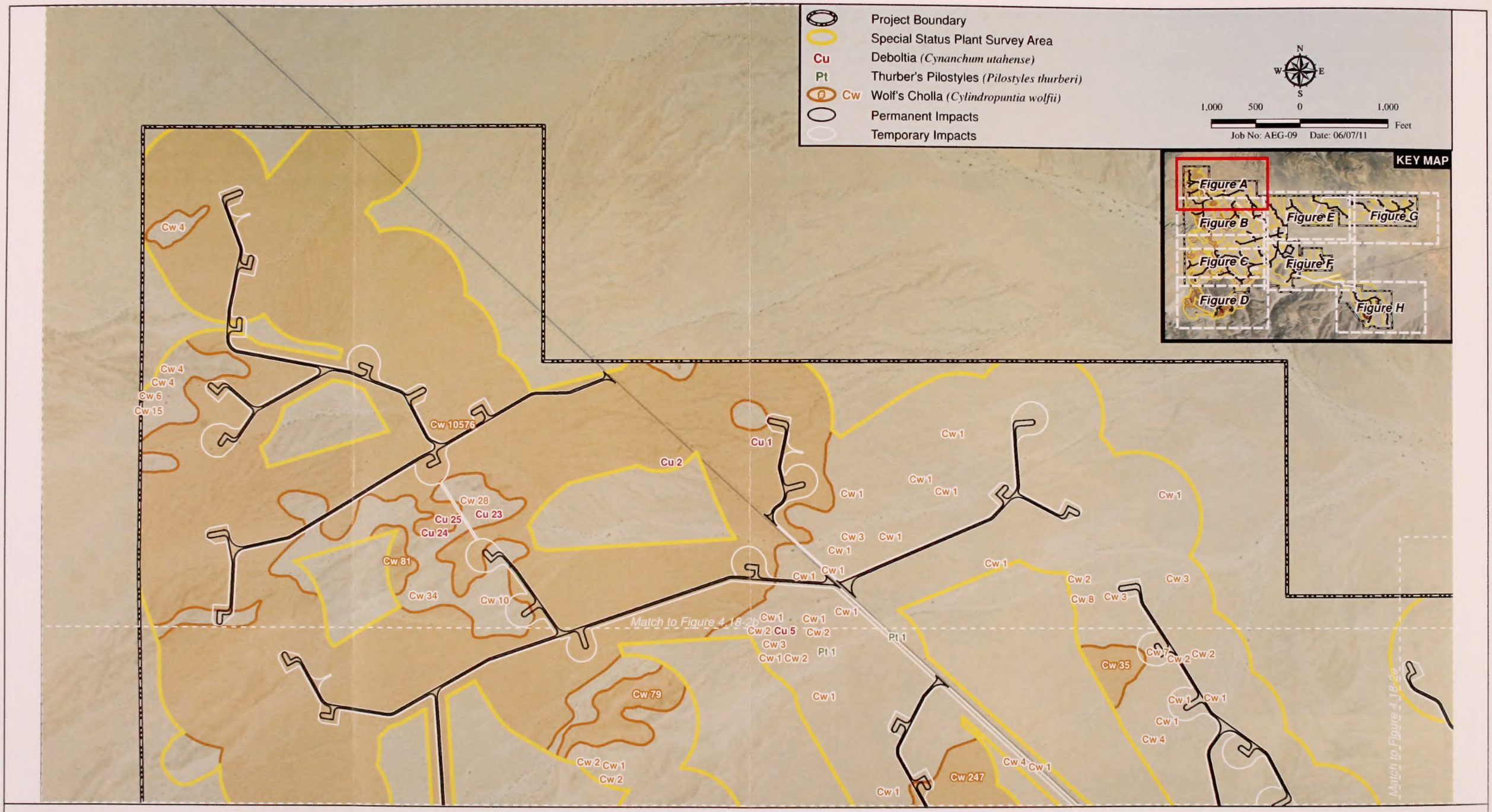
Total Construction Traffic Volumes AM/PM Peak Hours & ADT

Source: Linscott Law & Greenspan Engineers, March 17, 2011.



Source: Helix, 2011.

Figure 4.17-1
Vegetation Communities/Impacts (Representative Figure)



Source: Helix, 2011.

Figure 4.17-2
Special Status Plant Species/Impacts (Representative Figure)

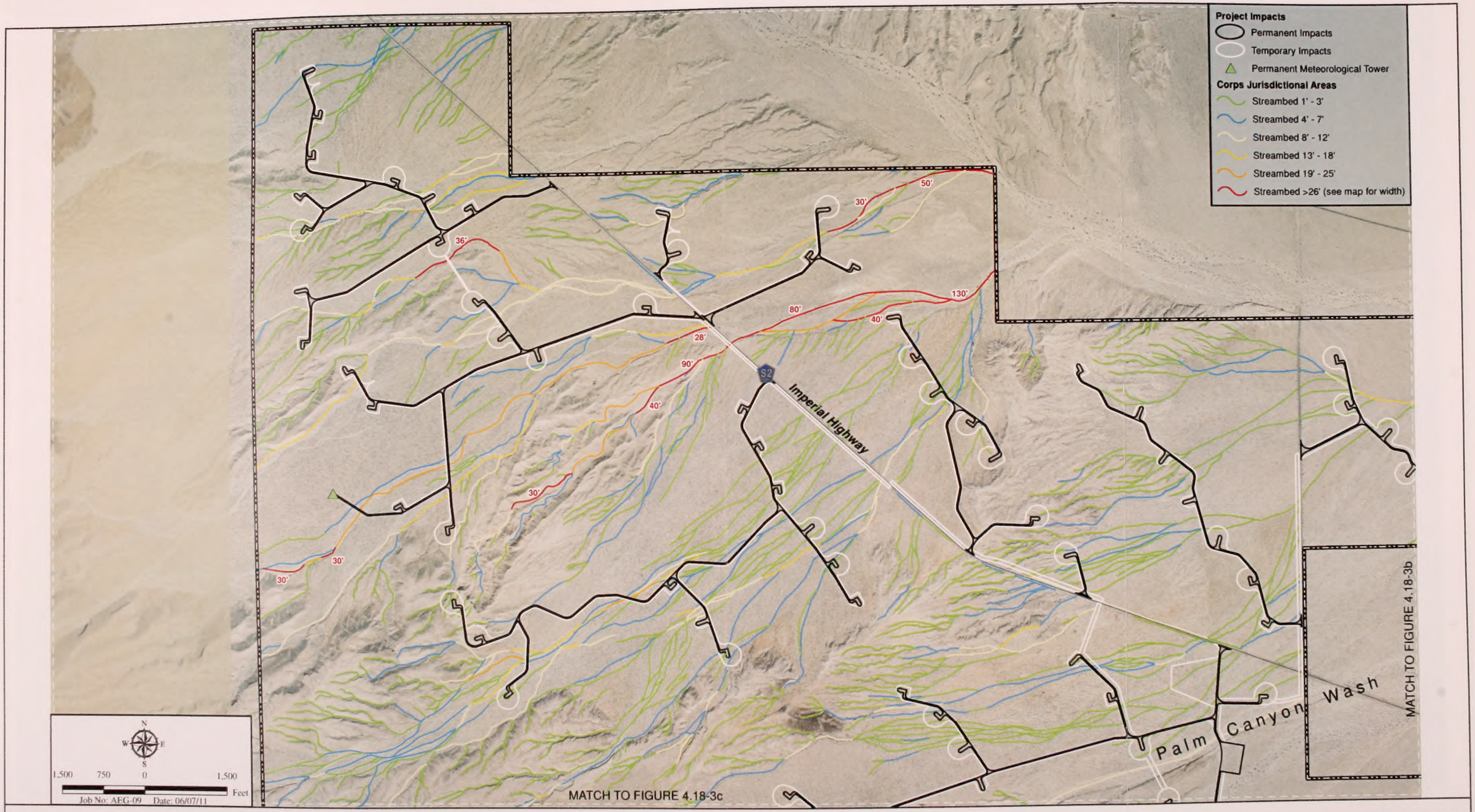


Figure 4.17-3
Corps Jurisdictional Delineation/Impacts (Representative Figure)

Source: Helix, 2011.

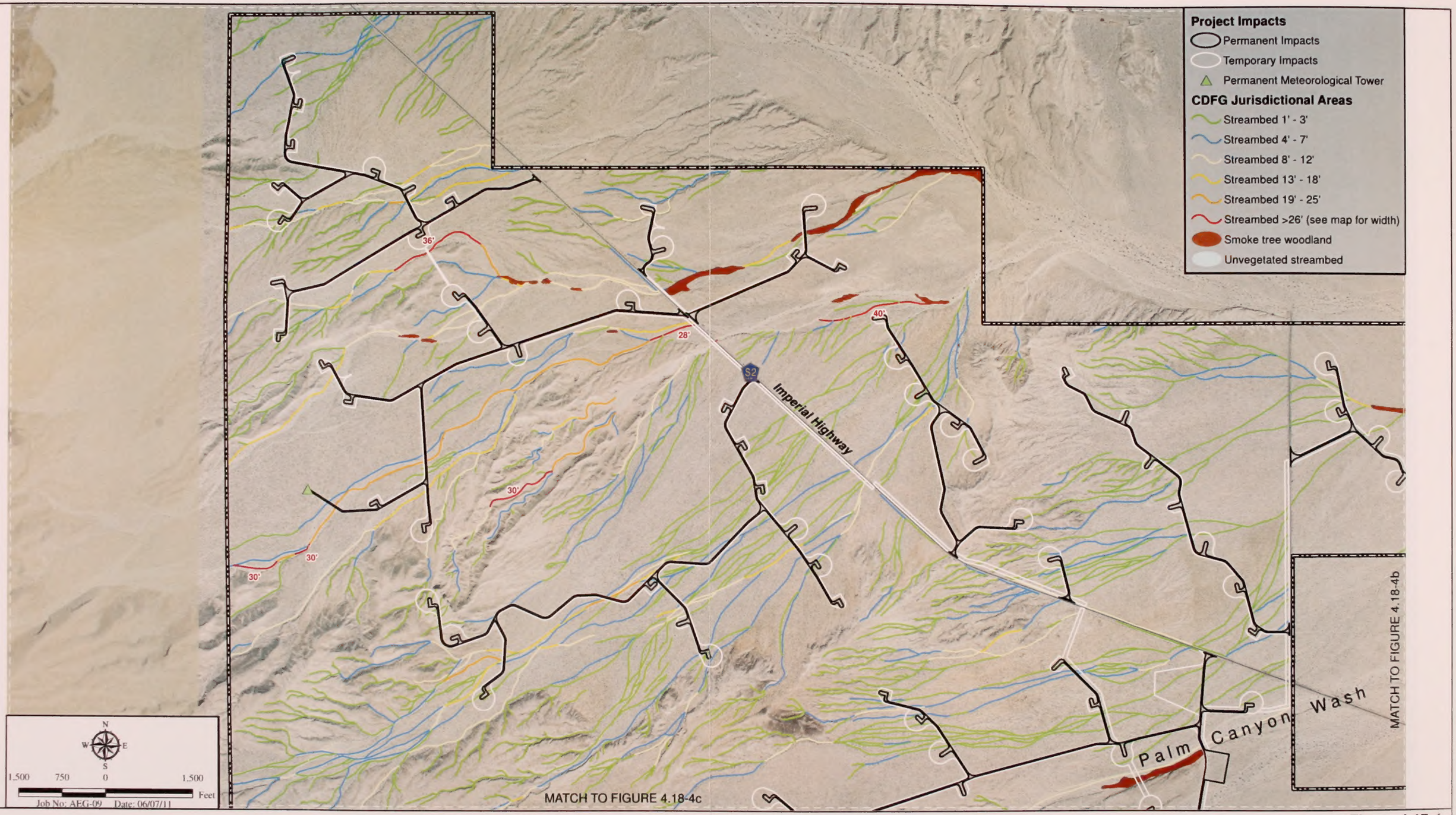


Figure 4.17-4

California Department of Fish and Game Jurisdictional Delineation/Impacts (Representative Figure)

Source: Helix, 2011.

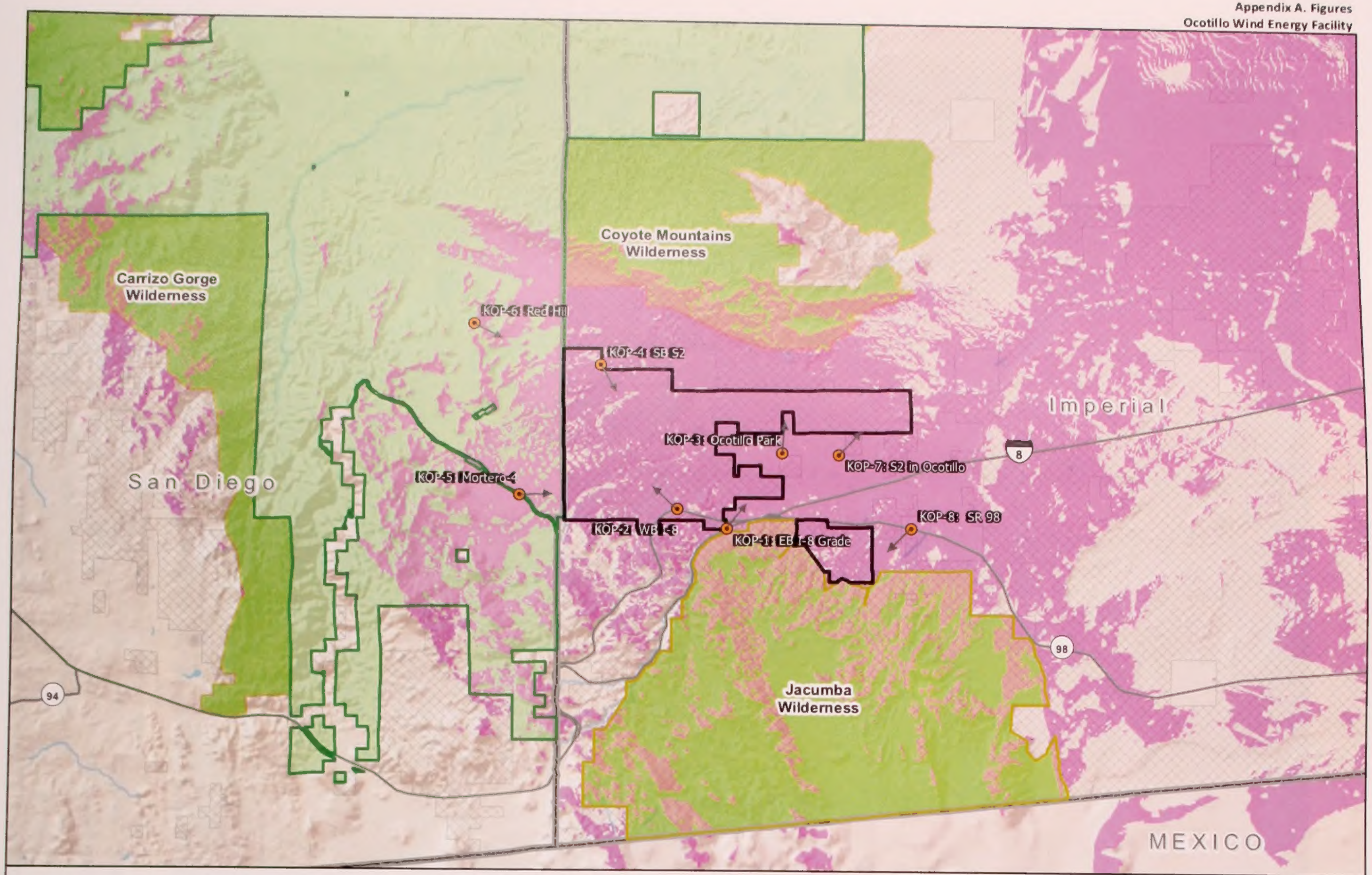


Figure 4.18-1

Project Viewshed Map



This image presents an **Existing View** of the **Proposed Project**, as viewed from Key Observation Point 1 on eastbound Interstate 8, at the I-8 split at the base of Mountain Springs Grade. This view to the north-northeast across the western portion of the Yuha Desert, captures the eastern portion of Site 1, backdropped by the Coyote Mountains.

Key Observation Point 1

Eastbound I-8

Viewing North-northeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-2A



This image presents a **Visual Simulation** of the **Proposed Project**, as viewed from Key Observation Point 1 on eastbound Interstate 8, at the I-8 split at the base of Mountain Springs Grade. This view to the north-northeast, encompasses 29 Phase 1 turbines and 4 Phase 2 turbines (not all visible) in the eastern portion of Site 1. The viewing distances to the turbines range from 1.0 mile to 5.0 miles. The turbines would be prominent features that would substantially obscure eastbound I-8 views of the Coyote Mountains and the Yuha Desert.

Key Observation Point 1
Eastbound I-8
Viewing North-northeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-2B



This image presents an **Existing View** of the **Proposed Project**, as viewed from Key Observation Point 2 on westbound Interstate 8, west of the I-8 split at the base of Mountain Springs Grade. This view to the northwest across the western portion of the Yuha Desert, captures the western portion of Site 1, backdropped by the Jacumba Mountains and Volcanic Hills in Anza-Borrego Desert State Park.

Key Observation Point 2
Westbound I-8
Viewing Northwest

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-3A



This image presents a **Visual Simulation** of the **Proposed Project**, as viewed from Key Observation Point 2 on westbound Interstate 8, west of the I-8 split at the base of Mountain Springs Grade. This view to the northwest across Site 1 encompasses 28 Phase 1 turbines and 8 Phase 2 turbines (not all visible). The viewing distances to the turbines ranges from approximately 0.4 mile to 4.4 miles. The turbines would be prominent features and would obscure portions of the Jacumba Mountains, Volcanic Hills and Coyote Mountains.

Key Observation Point 2
Westbound I-8
Viewing Northwest

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-3B



This image presents an **Existing View** of the **Proposed Project** area, as viewed from Key Observation Point 3 in Ocotillo Community Park. This view to the north captures the northeastern portion of Site 1, north of the community of Ocotillo, with the Coyote Mountains in the background.

Key Observation Point 3
Ocotillo Community Park
Viewing North

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-4A



This image presents a **Visual Simulation** of the **Proposed Project**, as viewed from Key Observation Point 3 in Ocotillo Community Park. This view to the north encompasses five Phase 1 structures in the northeastern portion of Site 1. Viewing distances range from approximately 0.9 mile to the closest Phase 1 structure (far right) to approximately 1.4 miles to the most distant Phase 1 structure. The Proposed Project structures would be prominent features that would partially obscure the background mountains.

Key Observation Point 3
Ocotillo Community Park
Viewing North

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-4B



This image presents an **Existing View** of the **Proposed Project** area, as viewed from Key Observation Point 4 on southbound County Road S2. This view to the south-southeast captures the western portion of Site 1, west of the community of Ocotillo and east of the San Diego/Imperial County line. The southeastern extent of the Jacumba Mountains and Jacumba Wilderness provide a backdrop of rugged, rocky mountain ridges that add visual interest to the foreground, flat basin of the western Yuha Desert.

Key Observation Point 4
Southbound S2
Viewing South-Southeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-5A



This image presents a **Visual Simulation** of the **Proposed Project**, as viewed from Key Observation Point 4 on southbound County Road S2. This view to the south-southeast encompasses 43 Phase 1 turbines in Site 1 though some are screened by terrain and other turbines. The viewing distances to the turbines ranges from approximately 0.64 mile to approximately 4.34 miles. The turbines would be prominent structural features that would obscure much of the western Yuha Desert basin and the Jacumba Mountains to the south.

Key Observation Point 4
Southbound S2
Viewing South-Southeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-5B



This image presents an **Existing View** of the **Proposed Project** area, as viewed from Key Observation Point 5 on the access road to Mortero Palms in the southern end of Anza-Borrego Desert State Park. This view to the east captures the majority of Site 1 in the western Yuha Desert, west and north of the community of Ocotillo and east of Anza-Borrego Desert State Park.

Key Observation Point 5
Anza-Borrego Low Elev.
Viewing East

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-6A



This image presents a **Visual Simulation** of the **Proposed Project**, as viewed from Key Observation Point 5 on the access road to Mortero Palms in the southern end of Anza-Borrego Desert State Park. This view to the east encompasses 102 Phase 1 turbines and 5 Phase 2 turbines in Sites 1 and 2. The viewing distances to the turbines ranges from approximately 1.2 to 9 miles. The turbines would be prominent features that would obscure much of the western Yuha Desert and portions of the Coyote and Jacumba Mountains.

Key Observation Point 5
Anza-Borrego Low Elev.
Viewing East

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-6B



This image presents an **Existing View** of the **Proposed Project** area, as viewed from Key Observation Point 6 on top of Red Hill in Anza-Borrego Desert State Park. This view to the east-southeast captures the majority of Sites 1 and 2 in the western Yuha Desert in the vicinity of the community of Ocotillo, which is faintly visible in the center of the image. The southeastern extent of the Jacumba Mountains are visible to the south (right). The northern extent of the Sierra Cucapa Range in Mexico is visible in the distant background.

Key Observation Point 6

Anza-Borrego-Red Hill

Viewing East-Southeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-7A



This image presents a **Visual Simulation** of the **Proposed Project**, as viewed from Key Observation Point 6 on top of Red Hill in Anza-Borrego Desert State Park. This elevated view to the east-southeast encompasses Phases 1 and 2 of the majority of Sites 1 and 2 (120 Phase 1 turbines and 20 Phase 2 turbines). The viewing distances range from approximately 2.3 miles to approximately 10.6 miles. The turbines would be prominent features, obscuring much of the western Yuha Desert basin floor and Jacumba Mountains.

Key Observation Point 6
Anza-Borrego-Red Hill
Viewing East-Southeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-7B



This image presents a **Visual Simulation** of **Alternative 2**, as viewed from Key Observation Point 6 on top of Red Hill in Anza-Borrego Desert State Park. This alternative would reduce the number of turbines to 137, and differs from the Proposed Project (Figure 4.18-7B) in that the Phase 2 turbines in the northwest and northeast corners of Site 1 have been removed, as have four turbines in Site 2, south of I-8. As shown in the simulation, the difference between Alternative 2 and the Proposed Project (Alternative 1) is not substantial.

Key Observation Point 6
Anza-Borrego-Red Hill
Viewing East-Southeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-7C



This image presents an **Existing View** of the northeast portion of Site 1, as viewed from Key Observation Point 7 on S2, in the community of Ocotillo. This view to the northeast captures a portion of the existing Southwest Powerlink transmission line north of the community of Ocotillo, and the southeastern extent of the Coyote Mountains. This view also illustrates the result that would occur with implementation of **Alternative 3**, which would eliminate the turbines that are proposed for this portion of Site 1 (see Figure 4.18-8B).

Key Observation Point 7
S2 in Ocotillo
Viewing Northeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-8A



This image presents a **Visual Simulation** of the **Proposed Project** (Alternative 1), as viewed from Key Observation Point 7 on S2 in the community of Ocotillo. This view to the northeast encompasses 10 Phase 1 turbines and five Phase 2 turbines in the northeast corner of Site 1. This view is available to travelers on S2 and residents along S2 in the community of Ocotillo. These turbines would be eliminated with implementation of **Alternative 3**, thus, retaining the existing setting previously shown in Figure 4.18-8A.

Key Observation Point 7
S2 in Ocotillo
Viewing Northeast

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-8B



This image presents an **Existing View** of the **Proposed Project** Site 2 development area, as viewed from Key Observation Point 8, on SR 98 at Mesquite Road, southeast of the community of Ocotillo. This view to the southwest toward the Jacumba Mountains captures the majority of Site 2 that would be visible to travelers on SR 98 and the rural residences in the vicinity of Coyote Wells. This view also illustrates the result that would occur with implementation of **Alternative 3**, which would eliminate the Site 2 turbines.

Key Observation Point 8
SR 98 Southeast of Ocotillo
Viewing Southwest

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-9A



This image presents a **Visual Simulation** of the **Proposed Project** (Alternative 1), as viewed from Key Observation Point 8 on SR 98, southeast of Ocotillo. This view to the southwest encompasses 10 Phase 1 turbines and three Phase 2 turbines in Site 2. This view is available to travelers on SR 98 and residents in the Coyote Wells area. These turbines would be eliminated from the development plan with implemenation of **Alternative 3**, thus, retaining the existing setting previously shown in Figure 4.18-9A.

Key Observation Point 8
SR 98 Southeast of Ocotillo
Viewing Southwest

OCOTILLO WIND ENERGY FACILITY EIS/EIR
Visual Resources Analysis
Figure 4.18-9B

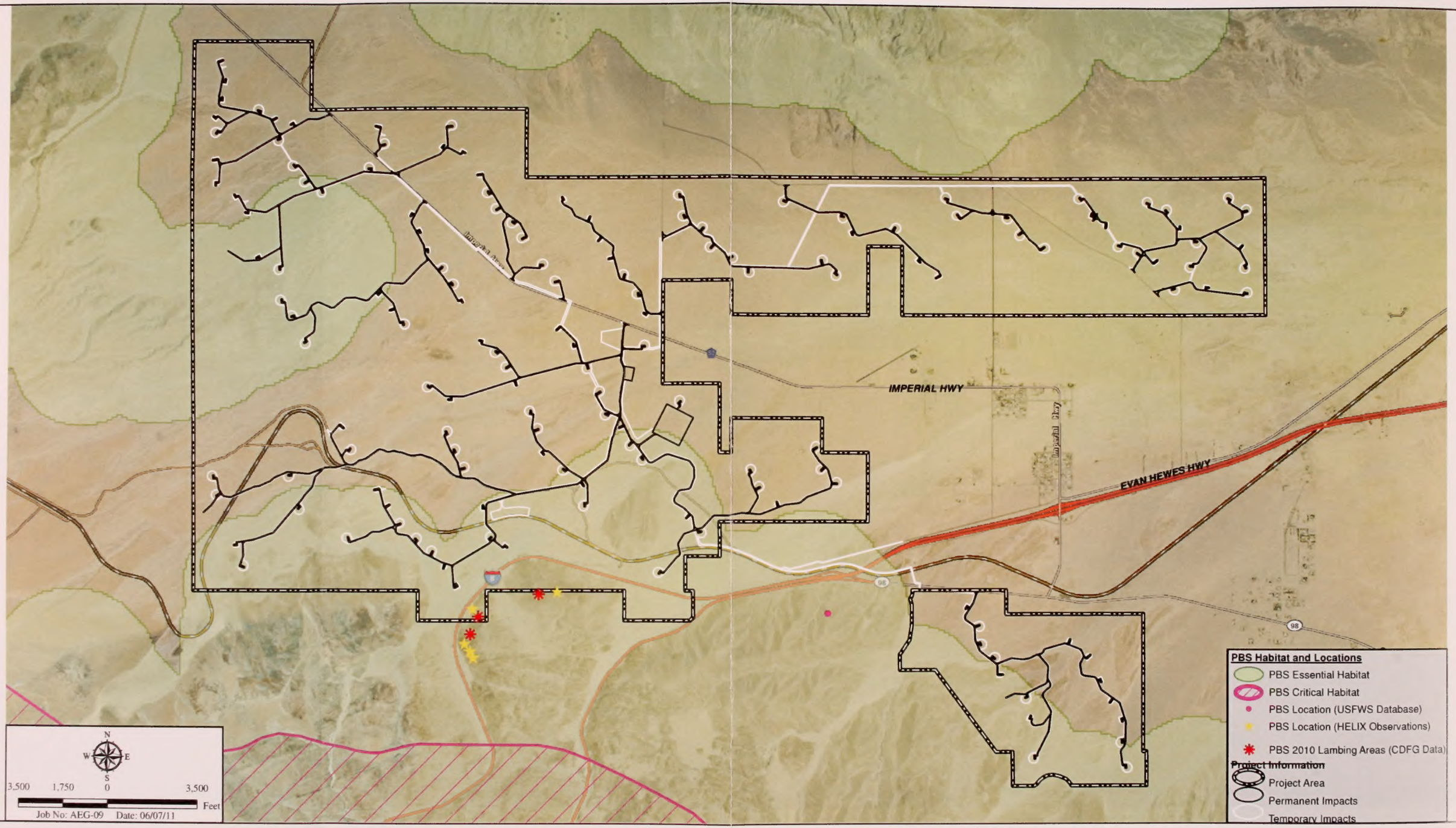
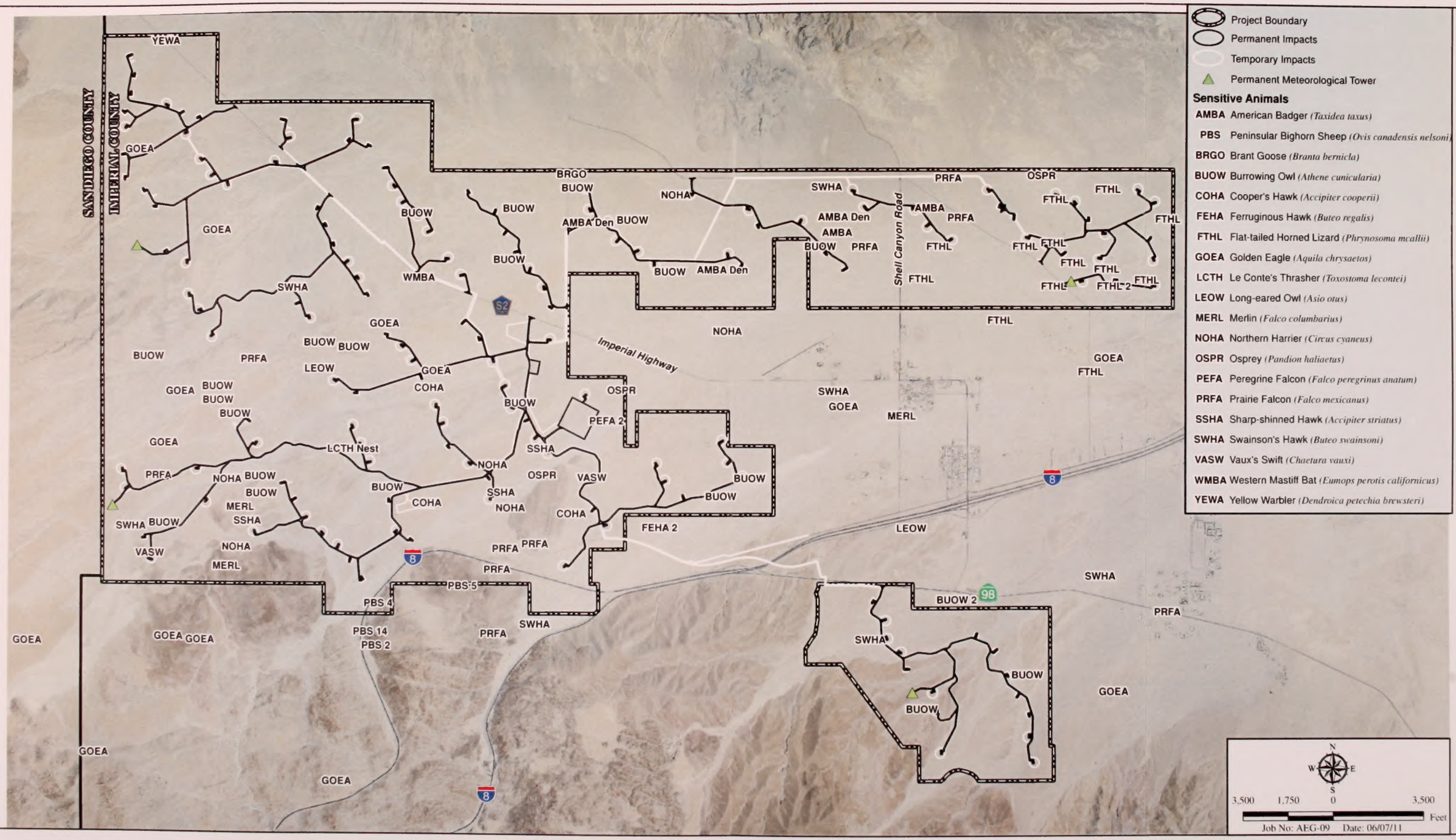


Figure 4.21-1

Peninsular Bighorn Sheep/Impacts

Source: Helix, 2011.



Source: Helix, 2011.

Figure 4.21-2

Special Status Animals

Appendix B

Federal Laws, Regulations, and Executive Orders

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Federal Laws, Regulations, and Executive Orders

Appendix B. Federal Laws, Regulations, and Executive Orders

The Bureau of Land Management (BLM) must comply with the mandate and intent of the following federal laws (and any applicable regulations) and Executive Orders (EOs) that apply to BLM-administered lands and resources in the Planning Area.

B.1 Air

Clean Air Act (42 U.S.C. 7401 et seq.)

The primary objective of the Clean Air Act (CAA) is to establish federal standards for various pollutants from both stationary and mobile sources and to provide for the regulation of polluting emissions via state implementation plans. In addition, the amendments are designed to prevent significant deterioration in certain areas where air quality exceeds national standards and to provide for improved air quality in areas which do not meet federal standards ("non-attainment" areas).

Federal facilities are required to comply with air quality standards to the same extent as non-governmental entities. Part C of the 1977 amendments stipulates requirements to prevent significant deterioration of air quality and, in particular, to preserve air quality in national parks, national wilderness areas, national monuments, and national seashores.

The amendments establish Class I, II, and III areas, where emissions of particulate matter and sulfur dioxide are to be restricted. The restrictions are most severe in Class I areas and are progressively more lenient in Class II and III areas.

Mandatory Class I federal lands include all national wilderness areas exceeding 500 acres. Federal land managers are charged with direct responsibility to protect the air quality and related values (including visibility) of Class I lands and to consider, in consultation with the Environmental Protection Agency (EPA), whether proposed facilities will have an adverse impact on these values.

B.2 American Indians

A. American Indian Religious Freedom Act (42 U.S.C. 1996)

This act recognizes that freedom of religion for all people is an inherent right and that traditional American Indian religions are an indispensable and irreplaceable part of Indian life. Establishing federal policy to protect and preserve the inherent right of religions freedom for Native Americans, this act requires federal agencies evaluate their actions and policies to determine, if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. Such evaluations are made in consultation with native traditional religious leaders.

B. Native American Graves Protection & Repatriation Act (25 U.S.C. 3001-13)

This act establishes requirements for the treatment of Native American human remains and sacred or cultural objects found on federal land.

In any case where such items can be associated with specific tribes or groups of tribes, the agency is required to provide notice of the item in question to the tribe or tribes. Upon request, each agency is required to return any such item to any lineal descendant or specific tribe with whom such item is associated. There are various additional requirements imposed upon the Secretary.

C. Indian Sacred Sites (EO 13007, May 24, 1996)

In managing federal lands, agencies shall, to the extent practicable, permitted by law, and not inconsistent with agency functions, accommodate Indian religious practitioners' access to and ceremonial use of Indian sacred sites. Agencies are to avoid adversely affecting the physical integrity of these sites, maintaining the confidentiality of such sites, and informing tribes of any proposed actions that could restrict access to, ceremonial use of, or adversely affect the physical integrity of, sacred sites.

D. Consultation & Coordination with Indian Tribal Governments (EO 13175, November 6, 2000)

In formulating or implementing policies that have tribal implications, agencies shall respect Indian tribal self-government and sovereignty, honor tribal treaty and other rights, and strive to meet the responsibilities that arise from the unique legal relationship between the Federal Government and Indian tribal governments.

E. Religious Freedom Restoration Act (42 U.S.C. §2000bb)

This act is aimed at preventing laws which substantially burden a person's free exercise of their religion. The Religious Freedom Restoration Act reinstated the **Sherbert Test**, mandating that strict scrutiny be used when determining if the **Free Exercise Clause** of the **First Amendment to the United States Constitution**, guaranteeing religious freedom, has been violated. In this, the courts must first determine whether a person has a claim involving a sincere religious belief, and whether government action has a substantial burden on the person's ability to act on that belief. If these two elements are established, then the government must prove that it is acting in furtherance of a compelling state interest, and that it has pursued that interest in the manner least restrictive, or least burdensome, to religion.

B.3 Antiquities/Archaeological

A. Antiquities Act (16 U.S.C. §§431-433)

This act authorizes the President to designate as National Monuments objects or areas of historic or scientific interest on lands owned or controlled by the United States. The act required that a permit be obtained for examination of ruins, excavation of archaeological sites, and the gathering of objects of

antiquity on lands under the jurisdiction of the Secretaries of the Interior, Agriculture, and Army, and provided penalties for violations.

B. Historic Sites, Buildings and Antiquities Act (16 U.S.C. 461-462, 464-467)

This act declared it a national policy to preserve historic sites and objects of national significance. It provided procedures for designation, acquisition, administration, and protection of such sites. Among other things, National Historic and Natural Landmarks are designated under authority of this act.

C. Archaeological Resources Protection Act (16 U.S.C. 470aa - 470ll)

This act largely supplanted the resource protection provisions of the Antiquities Act for archaeological items. It established detailed requirements for issuance of permits for any excavation for or removal of archaeological resources from federal or Indian lands. It also established civil and criminal penalties for the unauthorized excavation, removal, or damage of any such resources; for any trafficking in such resources removed from federal or Indian land in violation of any provision of federal law; and for interstate and foreign commerce in such resources acquired, transported or received in violation of any state or local law.

D. Archeological and Historic Preservation Act (16 U.S.C. 469-469c)

This law was enacted to carry out the policy established by the Historic Sites Act, directed federal agencies to notify the Secretary of the Interior whenever they find a federal or federally assisted, licensed or permitted project may cause loss or destruction of significant scientific, prehistoric, or archaeological data. The act authorized use of appropriated, donated, and/or transferred funds for the recovery, protection, and preservation of such data.

E. National Historic Preservation Act (16 U.S.C. 470 et seq.)

This act provided for preservation of significant historical features (buildings, objects, and sites) through a grant-in-aid program to the states. It established a National Register of Historic Places (NRHP) and a program of matching grants under the existing National Trust for Historic Preservation. The act established an Advisory Council on Historic Preservation, which was made a permanent independent agency in1976. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the NRHP.

F. Protection & Enhancement of Cultural Environment (EO 11593, May 13, 1971)

Federal agencies are to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Agencies are to locate and evaluate all federal sites under their jurisdiction or control which may qualify for listing on the NRHP. For sites that qualify, agencies are to initiate procedures to maintain such federally owned sites. The Advisory Council on Historic Preservation must be allowed to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined in consultation with the State Historic Preservation Office.

G. Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898, February 11, 1994)

Agencies shall make achieving environmental justice part of their mission by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

H. Preserve America (EO 13287, March 3, 2003)

Agencies shall provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of the historic properties owned by the federal government.

Each agency is to provide and maintain an assessment of the status of its inventory of historic properties and their ability to contribute to community economic development initiatives.

Where consistent with its mission and governing authorities, and where appropriate, agencies shall

1. seek partnerships with state and local governments, Indian tribes, and the private sector to promote the unique cultural heritage of communities and of the nation and to realize the economic benefit that these properties can provide; and
2. cooperate with communities to increase opportunities for public benefit from, and access to, federally owned historic properties.

B.4 Environment—Generally

A. National Environmental Policy Act (42 U.S.C. 4321 et seq.)

The NEPA encourages productive and enjoyable harmony between man and his environment; promotes efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; and enriches the understanding of the ecological systems and natural resources important to the nation

The NEPA requires that for recommendations or reports on proposals for legislation and other major actions significantly affecting the quality of the human environment that federal agencies through a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment include a detailed statement by the responsible official on -

1. the environmental impact of the proposed action;
2. any adverse environmental effects which cannot be avoided should the proposal be implemented;
3. alternatives to the Proposed Action;
4. the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and
5. any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented.

B. Protection & Enhancement of Environmental Quality (EO 11514, Mar 5, 1970)

Federal agencies shall initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals of protecting and enhancing the quality of the nation's environment to sustain and enrich human life.

Agencies should monitor, evaluate, and control on a continuing basis their agencies' activities so as to protect and enhance the quality of the environment. Such activities shall include those directed to controlling pollution and enhancing the environment and those designed to accomplish other program objectives which may affect the quality of the environment.

Agencies shall ensure the fullest practicable provision of timely public information and understanding of federal plans and programs with environmental impact in order to obtain the views of interested parties. This will include, whenever appropriate, provision for public hearings and shall provide the public with relevant information, including information on alternative courses of action.

C. Environmental Quality Improvement Act (42 U.S.C. 4371 et seq.)

Ensures that each federal agency conducting or supporting public works activities affecting the environment implements policies established under existing law principally by establishing the Office of Environmental Quality to provide assistance to, and oversight of, federal agencies.

D. Federal Land Policy and Management Act (43 U.S.C. 1701 et seq.)

The "Organic Act" for the BLM, this act provides for the inventory and planning of the public lands to ensure that these lands are managed in accordance with the intent of Congress under the principles of multiple use and sustained yield. The lands are to be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values that, where appropriate, will preserve and protect certain public lands in their natural conditions, provide food and habitat for fish and wildlife and domestic animals, and provide for outdoor recreation and human occupancy and use by encouraging collaboration and public participation throughout the planning process.

In addition, the public lands must be managed in a manner that recognizes the nation's need for domestic sources of minerals, food, timber, and fiber from the public lands.

Many old laws were repealed, but rights obtained under those laws are protected.

New authority for the disposal of appropriate public lands through sale or exchange is provided.

Right-of-way granting procedures are provided for both the BLM and the US Forest Service (USFS).

The regulations contained in 43 Code of Federal Regulations (CFR) Part 1600 govern the BLM planning process.

B.5 Fire

Timber Protection Act (16 U.S.C. 5940)

This act authorizes the Secretary of the Interior to protect timber on lands under the Department of Interior's (DOI) jurisdiction from fire, disease, and insects

B.6 Fish and Wildlife

A. Animal Damage Control Act (7 U.S.C. 426-426c)

This act, as amended, gives the Secretary of Agriculture broad authority for investigation, demonstrations, and control of mammalian predators, rodents, and birds.

B. Bald Eagle Protection Act (16 U.S.C. 668-668d)

This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds, parts, eggs, or nests.

C. Endangered Species Act (16 U.S.C. 1532 et seq.)

This act provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend, both through federal action and by encouraging the establishment of state programs. The act:

1. authorizes the determination and listing of species as endangered and threatened;
2. prohibits unauthorized taking, possession, sale, and transport of endangered species;
3. provides authority to acquire land for the conservation of listed species, using land and water conservation funds;
4. authorizes establishment of cooperative agreements and grants-in-aid to states that establish and maintain active and adequate programs for endangered and threatened wildlife and plants;
5. authorizes the assessment of civil and criminal penalties for violating the act or regulations; and
6. authorizes the payment of rewards to anyone furnishing information leading to arrest and conviction for any violation of the act or any regulation issued thereunder.

Section 7 of the Endangered Species Act requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat.

D. Neotropical Migratory Bird Conservation Act (P.L. 106-247)

This act provides grants to countries in Latin America and the Caribbean, and the United States for the conservation of neotropical migratory birds that winter south of the border and summer in North America. The law encourages habitat protection, education, researching, monitoring, and capacity building to provide for the long-term protection of neotropical migratory birds.

E. Conservation of Migratory Birds (EO 13186, January 10, 2001)

Under the principals of a Memorandum of Understanding (MOU) with the (US Fish and Wildlife Service (USFWS), each agency shall, to the extent permitted by law, subject to the availability of appropriations, within administration budgetary limits, and in harmony with agency missions, among others:

1. support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
2. restore and enhance the habitat of migratory birds, as practicable;
3. prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable;
4. design migratory bird habitat and population conservation principles, measures, and practices into agency plans and planning processes as practicable;
5. within established authorities and in conjunction with the adoption, amendment, or revision of agency management plans and guidance, ensure that agency plans and actions promote programs and recommendations of comprehensive migratory bird planning efforts; and
6. ensure that environmental analyses of actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds.

F. Recreational Fisheries (EO 12962, June 7, 1995)

Agencies shall improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities by such activities as:

1. developing and encouraging partnerships between governments and the private sector to advance aquatic resource conservation and enhance recreational fishing opportunities;
2. identifying recreational fishing opportunities that are limited by water quality and habitat degradation and promoting restoration to support viable, healthy, and, where feasible, self-sustaining recreational fisheries;
3. fostering sound aquatic conservation and restoration endeavors to benefit recreational fisheries;
4. supporting outreach programs designed to stimulate angler participation in the conservation and restoration of aquatic systems, and implementing laws under their purview in a manner that will conserve, restore, and enhance aquatic systems that support recreational fisheries.

G. Exotic Organisms (EO 11987, May 24, 1977)

Agencies, to the extent permitted by law, are to:

1. restrict the introduction of exotic species into the natural ecosystems on lands and waters owned or leased by the U.S.;

2. encourage states, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the U.S.;
3. restrict the importation and introduction of exotic species into any natural U.S. ecosystems as a result of activities they undertake, fund, or authorize; and
4. restrict the use of federal funds, programs, or authorities to export native species for introduction into ecosystems outside the U.S. where they do not occur naturally.

B.7 Land

A. Desert Land Act (43 U.S.C. 321 et seq.)

Allows entry of up to 320 acres of desert land of which the entryman intends to reclaim the land for agricultural purposes within 3 years. Lands must be determined to be available and classified pursuant to 43 U.S.C. 315f before such an entry can be allowed.

B. Sales of Public Lands (43 U.S.C. 1713)

Allows the sale of public lands found suitable for use other than grazing or the production of forage crops that also

a. is difficult and uneconomic to manage; or
b. the tract was acquired for a purpose for which the tract is no longer necessary, or
c. disposal of the tract will serve important public objectives

C. Exchanges of Public Land for Non-federal Land (43 U.S.C. 1716)

Allows the exchange of Public Land, or interests therein, for non-federal lands where it is determined (the Secretary finds) that the public interest will be well served by making the exchange. Values of the disposed and acquired lands must be equal in value.

D. Federal Land Exchange Facilitation Act (43 U.S.C. 1716, August 20, 1988)

Basically amends the exchange provisions of the Federal Land Policy and Management Act (FLPMA) to streamline and facilitate land exchange procedures and to expedite exchanges.

E. Federal Land Transaction Facilitation Act (PL 106-248, July 25, 2000)

Provides a more expeditious process for disposal and acquisition of land to facilitate a more effective configuration of land ownership patterns.

Funds from the sale of specified land is deposited in a special fund available to acquire land and to process additional land sales.

B.8 Rights-of-Way

With the passage of FLPMA in 1976, the BLM was left with existing rights-of-way (ROWs) (Pre-FLPMA ROWs) and three basic authorities under which Public Lands may be used or dedicated to various types of ROWs.

A. Pre-FLPMA ROWs (43 U.S.C. 1701 Savings Provision)

Various laws provided for ROWs ranging from ditches and canals through communications to railroads. Some are indefinite in term and will remain under the pre-FLPMA authority until abandoned. Others have definite terms and will come under current authorities if amended or renewed.

B. Oil and Gas Pipeline ROWs (30 U.S.C. 1850

The Mineral Leasing Act of 1920, as amended, contains provisions for the issuance of ROWs for the transportation of natural gas and oil or products derived there from. The term of the ROW is limited to 30 years but is renewable. Where an application involves land administered by two or more federal agencies, the Secretary of the Interior has delegated the decision making to the BLM. Federal agencies are not eligible under this authority.

C. FLPMA ROWs (43 U.S.C. 1761 et seq.)

Title V of FLPMA gives the BLM authority to authorize most any type of ROW use, other than oil and gas ROWs, on the public lands. The term of the ROW is determined by need and conditions; it may be indefinite but usually is around 30 years. ROWs are renewable.

D. Federal Aid Highways (23 U.S.C. 317)

Where Federal Aid Highways are involved, the Secretary of Transportation may appropriate federal land for such highway projects. Applications or requests are usually filed by the State Department of Transportation through the local office of the Federal Highway Administration (FHWA). If BLM does not disapprove such a request within 120 days, the appropriation is automatic. When BLM issues a letter "consenting" to the appropriation, reasonable terms and conditions may be included.

E. Energy Supply, Distribution, or Use (EO 13211, May 18, 2001)

This order requires an impact and alternative analysis for any proposed rule that would have an adverse impact on energy supply, distribution, or use.

F. Action to Expedite Energy-Related Projects (EO 13212, May 18, 2001)

For energy-related projects, agencies shall expedite their review of permits or take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections. The agencies shall take such actions to the extent permitted by law and regulation, and where appropriate.

G. Environmental Stewardship and Transportation Infrastructure Project Reviews (EO 13274, September 18, 2002)

Agencies shall take appropriate actions, to the extent consistent with applicable law and available resources, to promote environmental stewardship in the nation's transportation system and expedite environmental reviews of high-priority transportation infrastructure projects. For transportation infrastructure projects, agencies shall, in support of the Department of Transportation, formulate and implement administrative, policy, and procedural mechanisms that enable each agency required by law to conduct environmental reviews with respect to such projects to ensure completion of such reviews in a timely and environmentally responsible manner.

H. Energy Policy Act (Pub. L. 109-58)

This act was signed into law on August 8, 2005. The act contains a multitude of provisions covering energy production, distribution, storage, efficiency, conservation, and research. The act requires efficiency standards for certain large appliances and extends Daylight Saving Time to reduce consumption. It provides funding to improve efficiency in low-income housing and expands the Energy Star program. It also requires the Federal Government to increase the efficiency of its buildings and vehicles, and provides tax credits for certain energy-efficient purchases or improvements. Other topics of note are renewable energy, expanding of the Strategic Petroleum Reserve, fuel production access in federal lands, the banning of drilling in the Great Lakes, electricity reliability, hydrogen vehicles, vehicle efficiency and alternative fuels, ethanol, and motor fuels.

B.9 Mining and Mineral Leasing

A. General Mining Law (30 U.S.C. 21 et seq.)

This authority sets forth rules and procedures for the exploration, location, and patenting of lode, placer, and mill site mining claims. Claimants must file notice of the original claim with the BLM as well as annual notice of intention to hold, affidavit of assessment work, or similar notice.

B. Mining and Mineral Policy Act (30 U.S.C. 21a)

This act expressed the national policy to foster and encourage private enterprise in

1. the development of economically sound and stable domestic mining, mineral, metal, and mineral reclamation industries,
2. the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs,
3. mining, mineral, and metallurgical research, including the use and recycling of scrap to promote the wise and efficient use of our natural and reclaimable mineral resources, and
4. the study and development of methods for the disposal, control, and reclamation of mineral waste products, and the reclamation of mined land, so as to lessen any adverse impact of mineral extraction and processing upon the physical environment that may result from mining or mineral activities.

C. Stock Raising Homestead Act (43 U.S.C. 291-299)

Patents issued under this authority reserved minerals to the United States as well as the right to prospect for, mine, and remove said minerals. Certain conditions exist to protect the patentee's improvements.

D. Mineral Leasing Act (30 U.S.C. 181 et seq.)

This act authorizes and governs leasing of public lands for development of deposits of coal, oil, gas and other hydrocarbons, sulphur, phosphate, potassium, and sodium.

E. Federal Coal Leasing Amendments Act (30 U.S.C. §201)

This act made major changes in the way coal leases tracts are established, economic and environmental considerations, sale/leasing procedures, and penalties for violations.

F. Surface Mining Control and Reclamation Act (30 U.S.C. 1201 et seq.)

This act establishes a program for the regulation of surface mining activities and the reclamation of coal-mined lands, under the administration of the Office of Surface Mining, Reclamation and Enforcement, in the DOI.

The law sets forth minimum uniform requirements for all coal surface mining on federal and state lands, including exploration activities and the surface effects of underground mining. Mine operators are required to minimize disturbances and adverse impact on fish, wildlife, and related environmental values and achieve enhancement of such resources where practicable. Restoration of land and water resources is ranked as a priority in reclamation planning.

G. Geothermal Steam Act (30 U.S.C. 1001 et seq.)

This act authorizes and governs the lease of geothermal steam and related resources on public lands.

H. Mineral Leasing Act for Acquired Lands (30 U.S.C. 351 et seq.)

This act authorizes and governs mineral leasing on acquired lands.

I. Materials Sales Act (30 U.S.C. 601)

Authorizes the sale or free use of vegetative materials and mineral material (so-called common varieties) not otherwise authorized by other law.

B.10 Noise & Vibration

A. Occupational Safety and Health (29 U.S.C. 651 et seq.0

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. Section 651 et seq.), the Department of Labor, Occupational Safety and Health Administration adopted regulations (29 CFR Section 1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to

which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

B. Guidelines for Assessing the Impacts of Ground-borne Vibration

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration associated with construction of rail projects, which have been applied by other jurisdictions to other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from ground-borne vibration. The FTA measure of the threshold of perception is 65 vibrational decibel (VdB), which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

B.11 Pollution—General

A. Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.)

This act regulates the treatment, transportation, storage, and disposal of solid and hazardous wastes. The Service is required to comply with standards for wastes generated at its facilities. The key provisions include:

Identification and listing of hazardous waste and standards applicable to hazardous waste—requires reporting of hazardous waste, permitting for storage, transport, and disposal, and it includes provisions for oil recycling and federal hazardous waste facilities inventories.

1. Management for solid waste, including landfills.
2. Applicability of federal, state, and local laws to federal agencies.
3. Management, replacement, and monitoring of underground storage tanks.

B. Comprehensive Environmental Response Compensation and Liability Act (Superfund) (42 U.S.C. 9601 et seq.)

The "Superfund" statute was enacted in 1980; major amendments were enacted in 1983 and in 1986. The 1980 statute authorized, through 1985, the collection of taxes on crude oil and petroleum products, certain chemicals, and hazardous wastes. It also established liability to the U.S. Government for damage to natural resources over which the U.S. has sovereign rights and requires the President to designate federal officials to act as trustees for natural resources. Use of Superfund monies to conduct natural resource damage assessments was provided.

The 1983 amendments established a comprehensive system to react to releases of hazardous substances and to determine liability and compensation for those affected. The President is authorized to notify federal and state natural resource trustees of potential damages to natural resources and to coordinate related assessments.

Amendments enacted in 1986 (known as the Superfund Amendment and Reauthorization Act), among others, 1) added effects on natural resources as a criterion for determining facilities to be placed on the

National Priorities List; 2) mandated the designation of federal officials to act as trustees for natural resources and to assess damages and injury to, as well as destruction of, or loss of, natural resources; 3) stipulated that Superfund monies may only be used for natural resource damage claims if all administrative and judicial remedies to recover costs from liable parties have been exhausted; 4) clarified that federal facilities are subject to the same cleanup requirements and liability standards as non-governmental entities, and 5) eliminated the authorization for use of Superfund monies to conduct damage assessments.

C. Federal Environmental Pesticide Control Act (7 U.S.C. §136)

This act, in simple terms, provided for a program for controlling the sale, distribution, and application of pesticides through an administrative registration process and for classifying pesticides for "general" or "restricted" use. "Restricted" pesticides may only be applied by or under the direct supervision of a certified applicator

D. Toxic Substances Control Act (15 U.S.C. 2601 et seq.)

This act authorized the EPA to obtain data from industry on health and environmental effects of chemical substances and mixtures. If unreasonable risk or injury may occur, the EPA may regulate, limit, or prohibit the manufacture, processing, commercial distribution, use, and disposal of such chemicals and mixtures.

E. Pollution Prevention Act (42 U.S.C. 13101 et seq.)

This act encourages manufacturers to avoid the generation of pollution by modifying equipment and processes, redesigning products, substituting raw materials, and making improvements in management techniques, training, and inventory control.

F. Federal Compliance with Right to Know Laws and Pollution Prevention Requirements (EO 12856, August 3, 1993)

Requires agencies to comply with the provisions of the Pollution Prevention Act and to assure all necessary actions are taken to prevent pollution. The Council on Environmental Quality provided guidance on pollution prevention in the Federal Register of January 29, 1993.

G. Solid Waste Disposal Act (42 U.S.C. 6901 et seq.)

Establishes a national policy that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment. It directs the EPA to provide guidelines for the treatment, handling, and storage of such wastes.

B.12 Rangelands

A. Taylor Grazing Act (43 U.S.C. 215 et seq.)

The Taylor Grazing Act (TGA) was the Federal Government's first effort to regulate grazing on federal lands. Under the act grazing districts were established of vacant, unreserved, public domain lands which were chiefly valuable for grazing and raising forage crops. Grazing is regulated through leases or licenses for which a fee is paid. Grazing Administration Regulations (43 CFR 4100) provide for the development of state Standards for Rangeland Health and Guideline for Grazing Management. Such standards and guidelines are approved through the BLM's planning and NEPA processes.

The TGA also eliminated settlement on the public domain and provided for the classification and disposal of public lands more valuable for uses other than grazing or the production of forage crops.

B. Public Rangelands Improvement Act (43 U.S.C. 1901 et seq.)

This act was instituted to improve public rangeland conditions in the 16 contiguous western states on which there is, or which are capable of, domestic livestock grazing. Rangeland quality is determined by soil quality, forage values, wildlife habitat, watershed and plant communities, the current state of vegetation in a site in relation to its potential, and the relative degree to which the kinds, proportions, and amounts of vegetation in a plant community resemble the desired plant community.

C. Noxious Plant Control Act (43 U.S.C. §§1241-43)

Authorizes agencies to allow and pay for state authorities to enter federal land for the control/destruction of noxious plants.

D. Federal Noxious Weed Act (7 U.S.C. 2801 et seq.)

This act provides the Secretary of Agriculture authority to designate plants as noxious weeds by regulation and prohibits the movement of all such weeds in interstate or foreign commerce except under permit. The Secretary of Agriculture also has authority to inspect, seize, and destroy products and to quarantine areas, if necessary, to prevent the spread of such weeds. The Secretary of Agriculture is also authorized to cooperate with other federal, state, and local agencies, farmers associations, and private individuals in measures to control, eradicate, or prevent or retard the spread of such weeds.

Each federal land-managing agency is to designate an office or person adequately trained in managing undesirable plant species to develop and coordinate a program to control such plants on the agency's land.

E. Invasive Species (EO 13112, February 3, 1999)

The purpose is to prevent the introduction of invasive species and provide for their control, as well as to minimize the economic, ecological, and human health impacts that invasive species cause.

Agencies whose actions may affect the status of invasive species shall: (1) identify such actions; (2) use relevant programs and authorities to prevent, control, monitor, and research such species; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere.

F. Wild Horses and Burros Act (16 U.S.C. 1331-1340)

This act provides for protection of wild, free-roaming horses and burros. It directs the BLM of the DOI and USFS of the Department of Agriculture to manage such animals on public lands under their jurisdiction.

B.13 Recreation

Recreation and Public Purposes Act (43 U.S.C. 869 et seq.)

This act provides for the lease or disposal of public lands and certain withdrawn or reserved lands to state and local governments, and qualified non-profit organizations to be used for recreational or public purposes. Prices charged for the use or acquisition are normally less than market value of the specific lands. Conditions are imposed in patents, and title may revert to the United States for cause.

B.14 Rivers and Streams

A. Wild & Scenic Rivers Act (16 U.S.C. 1271 et seq.)

This act establishes a National Wild and Scenic Rivers System and prescribes the methods and standards through which additional rivers may be identified and added to the system.

B. American Heritage Rivers (EO 13061, September 11, 1997)

This EO has three objectives: natural resource and environmental protection, economic revitalization, and historic and cultural preservation. Agencies, to the extent permitted by law and consistent with their missions and resources, shall coordinate federal plans, functions, programs, and resources to preserve, protect, and restore rivers and their associated resources important to our history, culture, and natural heritage.

B.15 Trails

National Trails System Act (16 U.S.C. 1241-1249)

This act provides for establishment of National Recreation, National Scenic, and National Historic Trails.

National Recreation Trails may be established by the Secretary of the Interior or Agriculture on land wholly or partly within their jurisdiction with the consent of the involved state(s) and other land managing agencies, if any. National Scenic and National Historic Trails may only be designated by an Act of Congress.

B.16 Water—General

A. Water Resources Planning Act (42 U.S.C. 1962a – 1962[a][4][e])

This act established a Water Resources Council to be composed of Cabinet representatives, including the Secretary of the Interior. It also established River Basin Commissions and stipulated their duties and authorities.

The council was empowered to maintain a continuing assessment of the adequacy of water supplies in each region of the U.S. In addition, the council was mandated to establish principles and standards for federal participants in the preparation of river basin plans and in evaluating federal water projects. Upon receipt of a river basin plan, the council was required to review the plan with respect to agricultural, urban, energy, industrial, recreational, and fish and wildlife needs.

B. Water Rights (43 U.S.C. 666)

This act waives the sovereign immunity of the United States where there is a suit designed to establish the rights to a river or other source of water, or the administration of such rights, and the United States appears to own or be in the process of acquiring rights to any such water. (The effect is to permit state courts to adjudicate federal water rights claims under state law.)

C. Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.)

The original 1948 statute, the Water Pollution Control Act, authorized the Surgeon General of the Public Health Service in cooperation with other federal, state, and local entities to prepare comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries and improving the sanitary condition of surface and underground waters. During the development of such plans, due regard was to be given to improvements necessary to conserve waters for public water supplies, propagation of fish and aquatic life, recreational purposes, and agricultural and industrial uses. The original statute also authorized the Federal Works Administrator to assist states, municipalities, and interstate agencies in constructing treatment plants to prevent discharges of inadequately treated sewage and other wastes into interstate waters or tributaries.

Since 1948, the original statute has been amended extensively either to authorize additional water quality programs, standards, and procedures to govern allowable discharges, funding for construction grants, or general program funding. Amendments in other years provided for continued authority to conduct program activities or administrative changes to related activities.

D. Clean Water Act (PL 95-217)

The Clean Water Act (CWA) extensively amended the Federal Water Pollution Act. Of particular significance were the following provisions:

1. Development of a Best Management Program as part of the state areawide planning program
2. Authority for the US Army Corps of Engineers to issue general permits on a state, regional, or national basis for any category of activities which are similar in nature will cause only minimal environmental effects when performed separately and will have only minimal cumulative adverse impact on the environment
3. Exemption of various activities from the dredge and fill prohibition including normal farming, silviculture, and ranching activities (33 U.S.C. 1344(f))
4. Procedures for state assumption of the regulatory program.

The CWA requires the EPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a

National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by EPA or the appropriate state, if it has assumed responsibility. Section 404 of the CWA establishes a federal program to regulate the discharge of dredged and fill material into waters of the United States. Section 404 permits are issued by the USACE.

E. Safe Drinking Water Act (42 U.S.C. §300h)

This act establishes a program to monitor and increase the safety of all commercially and publically supplied drinking water. Amended in 1986 to require the EPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and Best Available Control Technolocy (BACT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants, and turbidity. Current federal MCLs, MCLGs, and BACTs in public drinking water supplies were set in 1996.

F. Water Quality Act (PL 100-4)

This act provided the most recent series of amendments to the Federal Water Pollution Act. Provisions included:

1. Requirement that states develop strategies for toxics cleanup in waters where the application of BACT discharge standards is not sufficient to meet state water quality standards and support public health;
2. Increase in the penalties for violations of Section 404 permits; and
3. Requirement that EPA study and monitor the water quality effects attributable to the impoundment of water by dams.

G. Flood Control Act (16 U.S.C. 460d and other)

This act, as amended and supplemented by other flood control acts and river and harbor acts, authorizes various USACE water development projects. This statute expressed congressional intent to limit the authorization and construction of navigation, flood control, and other water projects to those having significant benefits for navigation and which could be operated consistently with other river uses. The authority to construct, operate, and maintain public park and recreational facilities in reservoir areas was also provided.

H. Oil Pollution Act (33 U.S.C. 2701 et seq.)

This act established new requirements and extensively amended the Federal Water Pollution Control Act to provide enhanced capabilities for oil spill response and natural resource damage assessment

Among other provisions are that federal trustees shall assess natural resource damages for natural resources under their trusteeship. Federal trustees may, upon request from an Indian tribe or state, assess damages to natural resources for them as well. Trustees shall develop and implement a plan for the restoration, rehabilitation, replacement, or acquisition of the equivalent of natural resources under their trusteeship.

I. Floodplain Management (EO 11988, May 24, 1977)

The purpose of this EO is to prevent agencies from contributing to the "adverse impacts associated with the occupancy and modification of floodplains" and the "direct or indirect support of floodplain development."

In the course of fulfilling their respective authorities, agencies "shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains."

Before proposing, conducting, supporting or allowing an action in a floodplain, each agency is to determine if planned activities will affect the floodplain and evaluate the potential effects of the intended actions on its functions. Agencies shall avoid siting development in a floodplain "to avoid adverse effects and incompatible development in the floodplains,"

J. Protection of Wetlands (EO 11990, May 24, 1977)

Similar to Floodplain Management, agencies are directed to consider alternatives to avoid adverse effects and incompatible developments in areas of wetlands. New construction is to be avoided if possible.

K. Colorado River Storage Project Act (43 U.S.C. 620)

This act authorized the Secretary of the Interior to construct a variety of dams, power plants, reservoirs, and related works. The act also authorized and directed the Secretary of the Interior, in connection with the development of the Colorado River Storage Project and participating projects, to investigate, plan, construct, and operate facilities to mitigate losses of and improve conditions for fish and wildlife and public recreational facilities. The act provided authority to acquire lands and to lease or convey lands and facilities to state and other agencies.

L. Colorado River Basin Project Act (43 U.S.C. 1501-1556)

This act provided a program for the comprehensive development of the water resources of the Colorado River Basin, and directed the Secretary of the Interior to develop, after consultation with affected states and appropriate federal agencies, a regional water plan to serve as the framework under which projects in the Colorado River Basin may be coordinated and constructed.

M. Colorado River Floodway Protection Act (100 Stat. 1129)

This act established a Colorado River Floodway Area, within which are prohibited 1) all new federal funding or financial assistance for any purpose (except for listed exceptions), 2) federal flood insurance for new construction or substantial improvements begun six months after enactment on existing structures, and 3) the granting of new federal leases (unless the Secretary of the Interior determines that the purpose is consistent with the act).

N. Colorado River Basin Salinity Control Act (43 U.S.C. §§1571-1599)

This act authorized the construction of facilities necessary to meet the terms of the 1973 Salinity Agreement with Mexico.

B.17 Wilderness

A. Wilderness Act (16 U.S.C. 1131 et seq.)

This act established a National Wilderness System of areas to be designated by Congress. It directed the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within National Wildlife Refuge and National Park Systems and to recommend to the President the suitability of each such area or island for inclusion in the National Wilderness Preservation System, with final decisions made by Congress. The Secretary of Agriculture was directed to study and recommend suitable areas in the National Forest System.

The act provides criteria for determining suitability and establishes restrictions on activities that can be undertaken on a designated area. Criteria set by Congress within this act states that wilderness areas have the following characteristics: (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and confined types of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value. The Wilderness Act also set the accepted uses of designated WAs and what uses are prohibited. The act sets special provisions for an agency's continuing management of existing or grandfathered rights such as mining and grazing and other agency mission related activities.

B. The California Desert Protection Act (P.L. 103-433)

This act designated lands in the California Desert as wilderness, established Death Valley and Joshua Tree National Parks, and established the Mojave National Preserve. Each WA designated would be administered by BLM in accordance with the provisions of the Wilderness Act, except that any reference to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this title.

B.18 Other

A. Base Closure and Realignment Act (Title II of P.L. 100-526)

The act establishes a preference for the sale of land made surplus as a result of base closures or reductions, with the funds to be utilized for the costs of the closures, or for transfer of the land to a local redevelopment authority. It does not require such sales, however, nor does it repeal the provisions of law permitting the no- or reduced-cost transfer of such land to federal agencies or the states for conservation purposes.

B. Cave Resources Protection Act (16 U.S.C. 4301 et seq.)

This act established requirements for the management and protection of caves and their resources on federal lands, including allowing the land managing agencies to withhold the location of caves from the public and requiring permits for any removal or collecting activities in caves on federal lands.

C. Federal Power Act (16 U.S.C. §§791-828c)

Established what is now the Federal Energy Regulatory Commission (FERC) studies water-related power development possibilities. Licenses and oversees the development of water power project on federal and non-federal lands. On federal land coordinates with agencies and for some agencies they may dictate conditions to be included in licenses.

The FERC also regulates interstate electric transmission lines and interstate oil and gas pipelines, and issues 'certificates of public convenience' for these interstate facilities.

D. Land and Water Conservation Fund (16 U.S.C. 460l - 460l-11)

The fund is derived from various types of revenue (primarily Outer Continental Shelf oil monies) and appropriations from the fund may be used for 1) matching grants to states for outdoor recreation projects and 2) land acquisition for various federal agencies.

E. Federalism (EO 13132, August 4, 1999)

In formulating and implementing policies that have federalism implications, agencies shall be guided by the following principles:

1. Federalism is rooted in the belief that issues that are not national in scope or significance are most appropriately addressed by the level of government closest to the people.
2. The people of the states created the national government and delegated to it enumerated governmental powers. All other sovereign powers, save those expressly prohibited the states by the Constitution, are reserved to the states or to the people.
3. The framers of the Constitution recognized that the states possess unique authorities, qualities, and abilities to meet the needs of the people and should function as laboratories of democracy.
4. The nature of our constitutional system encourages a healthy diversity in the public policies adopted by the people of the several states according to their own conditions, needs, and desires. One-size-fits-all approaches to public policy problems can inhibit the creation of effective solutions to those problems.
5. Policies of the national government should recognize the responsibility of—and should encourage opportunities for—individuals, families, neighborhoods, local governments, and private associations to achieve their personal, social, and economic objectives through cooperative effort.
6. The national government should be deferential to the states when taking action that affects the policymaking discretion of the states and should act only with the greatest caution where state or local governments have identified uncertainties regarding the constitutional or statutory authority of the national government.

F. Takings (EO 12630, March 15, 1988)

The Fifth Amendment of the United States Constitution provides that private property shall not be taken for public use without just compensation. Government historically has used the formal exercise of the power of eminent domain, which provides orderly processes for paying just compensation to acquire

private property for public use. Recent Supreme Court decisions, however, in reaffirming the fundamental protection of private property rights provided by the Fifth Amendment and in assessing the nature of governmental actions that have an impact on constitutionally protected property rights, have also reaffirmed that governmental actions that do not formally invoke the condemnation power, including regulations, may result in a taking for which just compensation is required.

Agencies shall evaluate carefully the effect of their actions on constitutionally protected property rights to prevent unnecessary takings and should account in decision making for those takings that are necessitated by statutory mandate.

G. Regulatory Impact Analysis(EO 12866, September 30, 1993)

Requires agencies to analyze the economic impact of proposed rules.

H. Off-Road Vehicles (EO 11644, February 8, 1972; EO 11989, May 24, 1977)

These orders require public land managers "to establish policies and procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands."

Appendix C

Public Scoping Report

Appendix C

Public Scoping Report

PUBLIC SCOPING REPORT

Environmental Impact Statement / Environmental Impact Report Ocotillo Express Wind Energy Project

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MARCH 2011

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A-2 Notice of Intent (published in the Federal Register on December 13, 2010)

B Public Notices

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C Scoping Meeting Materials

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D Scoping Meeting Sign-in Sheets and Speaker Registration Cards

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Abbreviations and Acronyms Used in this Report

AB	Assembly Bill
ACEC	areas of critical environmental concern
ALJ	Administrative Law Judge
BLM	Bureau of Land Management
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
DG	distributed generation
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
GHG	greenhouse gas
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NOP	Notice of Preparation
kV	kilovolt
MW	megawatt
NHPA	National Historic Preservation Act
OHV	off-highway vehicle
O&M	operations and maintenance
PTC	Permit to Construct
ROW	right-of-way
SB	Senate Bill
SDG&E	San Diego Gas & Electric Company
SHPO	State Historic Preservation Officer
THPO	Tribal Historic Preservation Officer
USFWS	U.S. Fish and Wildlife Service

1.0 OVERVIEW OF NEPA/CEQA SCOPING PROCESS

1.1 Introduction

Ocotillo Express, LLC has applied to the Bureau of Land Management (BLM) for a right-of-way (ROW) on public lands to construct a wind energy facility approximately five miles west of the community of Ocotillo (30 miles west of El Centro). The project would generate approximately 474 megawatts (MW) of wind energy on a 15,000-acre (23.4-square-mile) project site. Most of the proposed site consists of lands administered by BLM and subject to the California Desert Conservation Area (CDCA) Plan. Authorization of the ROW by BLM would require an amendment of the CDCA Plan. A small portion of the site lies on private land under the jurisdiction of Imperial County. Thus, Ocotillo Express, LLC has also applied for a Conditional Use Permit from the County of Imperial.

This public scoping report documents the BLM's and County's NEPA and CEQA scoping process and the comments received for the proposed project. Specifically, this report describes the scoping activities and summarizes the written and verbal comments received on the BLM's Notice of Intent (NOI) and County's Notice of Preparation (NOP) and comments received at the joint public scoping meetings held for the project. This report serves as an information source to the BLM and County in its determination of the range of issues and alternatives to be addressed in the joint Environmental Impact Statement (EIS)/Environmental Impact Report (EIR). The County and BLM will use the comments received during the scoping period to:

1) Identify key issues to focus the analysis
2) Identify reasonable alternatives for analysis
3) Present environmental impacts of the project and alternatives
4) Identify ways to avoid or reduce environmental impacts
5) Inform the agency decision-making process.

1.2 Summary of NEPA/CEQA Scoping Process

The NEPA/CEQA scoping process provides government agencies, public and private organizations, and the general public the opportunity to identify environmental issues and alternatives for consideration in the EIS/EIR. The scoping process and results are an initial step in the NEPA/CEQA process.

To comply with NEPA (40 CFR 1501.7), the BLM published the NOI in the Federal Register to prepare an EIS for the Ocotillo Express Wind Energy project (FR Vol. 75, No. 238, page 77654, December 13, 2010). The NOI serves as the official legal notice that a federal agency is

commencing preparation of an EIS. The Federal Register serves as the U.S. Government's official noticing and reporting publication. The NOI initiates the public scoping period for the EIS, provides information about the proposed project, and serves as an invitation for other federal agencies granted cooperating agency status to provide comments on the scope and content of the EIS.

As required by CEQA Guidelines §15082 (14 CCR 15000 et seq.), the California State Clearing House issued an NOP on December 21, 2010, that summarized the Ocotillo Express Wind Energy project and stated its intention to prepare a joint EIS/EIR, and requested comments from interested parties. The NOP is included as Appendix A-1 and the NOI is included as Appendix A-2.

There were 72 public notices sent to stakeholders, including 15 copies to the state clearinghouse; 39 to federal, state, and local agencies and organizations; 7 to local libraries; and 11 to Native American groups. The public notice, included as Appendix B-1, ran in the Imperial Valley Press on December 21, 2010, and was sent to the general distribution list of all those identified as property owners within a 5-mile radius of the proposed project site. BLM issued a press release, included as Appendix B-2, regarding the NOI on December 16, 2010.

The NOI and press release were also made available to the public on BLM's website for the Ocotillo Express Wind Energy project at:

http://www.blm.gov/ca/st/en/fo/elcentro/nepa/ocotillo_express_wind.html

During the NOP/NOI comment period, the County and BLM held two public scoping meetings on January 5, and January 6, 2011, in the Imperial County Board Room (940 Main Street, Suite 211, El Centro, California 92243) and Ocotillo Community Center (266 West Imperial Highway, Ocotillo, California 92259) respectfully.

The scoping meetings provided the public and government agencies the opportunity to receive information on the NEPA/CEQA process and on the proposed project and to provide verbal and written comments. Approximately 70 and 100 persons attended the scoping meetings in El Centro and Ocotillo, respectively, including representatives from local and state agencies, organizations, and private citizens.

Project fact sheets and comment cards were provided as handouts at the public scoping meetings (Appendix A). Additional materials provided to the public at the scoping meetings are contained within Appendix C and include the following:

1) Appendix C-1 – Project Fact Sheet
2) Appendix C-2 – Written Comment Card

3) Appendix C-3 – Speaker Registration Cards

4) Appendix C-4 – Scoping Meeting Presentation.

Appendix D includes scoping meeting sign-in sheets and completed speaker registration cards for the two meetings.

A digital audio recording device was used at the two public scoping meetings to capture verbal comments. The audio recordings are available from the County upon request. In addition, summary transcriptions of the verbal public comments are provided in Appendices E and F.

The comment period for the NOP and NOI ended on February 7, 2011. In total, 33 letters were received: 3 from federal, state, and local agencies and organizations; and 30 from individuals. These comments are incorporated into the EIS/EIR project record and are documented and summarized in this public scoping report.

1.3 Agencies, Organizations, and Persons Providing Scoping Comments

Federal, state, and local agencies; private and public organizations; and the general public provided written comments during the public scoping period. Written comments received during the public scoping meetings and in response to the NOP/NOI are included in Appendix G. In summary, Table 1 presents the agencies, organizations, and private citizens that provided comments during the NEPA/CEQA scoping process organized in the order they were issued.

Table 1
Comments Received During Public Scoping Period

Commenter	Date
Federal, State, and Local Agencies and Organizations	
Native American Heritage Commission, Dave Singleton, Program Analyst	December 27, 2010
U.S. Environmental Protection Agency, Region IX, Ann McPherson, Environmental Review Office	January 11, 2011
Department of Transportation, District 11, Division of Planning, Jacob Armstrong	January 19, 2011
Individuals	
George Blender	December 25, 2010
Parke Ewing	December 27, 2010
Charlene Compson	December 27, 2010
John Mood	December 28, 2010
Chris Pate	January 4, 2011
Robert Dallezotte	January 4, 2011

Table 1 (Continued)

Commenter	Date
Bill and Charlene Compson	January 4, 2011
Mark Meech	January 4, 2011
James and Rebecca Wilson	January 5, 2011
Edie Harmon	January 5, 2011
Martin Jorgensen	January 5, 2011
Bill Jackson	January 6, 2011
Ocotillo Community Meeting Notes (unknown author)	January 6, 2011
Wilburn E. Stovall	January 8, 2011
Barbara Hill	January 11, 2011
Scott Dollard	January 13, 2011
Pete Zeitler	January 14, 2011
Darrell and Ima Walker	January 15, 20111
Donna Tisdale	January 17, 2011
Charles and Laurie Baker	January 18, 2011
Joyce and Richard Denison	January 18, 2011
Joyce and Richard Denison	January 18, 2011
Chris Pate	January 19, 2011
Tony Ligutti	January 20, 2011
Cynthia Buxton	January 21, 2011
Terry Weiner	January 21, 2011
Cynthia Buxton	January 21, 2011
Edie Harmon	January 21, 2011
Parke Ewing	January 21, 2011
Mark Meech	January 24, 2011

1.4 Scoping Report Organization

This public scoping report summarizes the comments and issues identified through the project's scoping period, including the public scoping meetings. Imperial County and BLM will review and consider all the written and verbal comments received in preparing the EIS/EIR for the Proposed Project.

Section 2 provides summary information on Ocotillo Express, LLC's stated project objectives and a description of the project and provides background information regarding the proposed project.

Section 3 provides an overall summary of the comments received and issues raised during the project's public review period, including verbal comments received during the public scoping meetings.

Section 4 provides a summary of future steps in the planning process and indicates opportunities for public participation in the environmental review process.

Section 5 includes a list of references used in preparation of this scoping report.

Following is the list of appendices that includes public scoping notices, scoping meeting materials, scoping meeting transcripts, and public comments received during the public review period.

A. Notices
   - A-1 Notice of Preparation (posted December 21, 2010)
   - A-2 Notice of Intent (published in the Federal Register on December 13, 2010)

B. Scoping Meeting Notices
   - B-1 Public Notice (County, December 20, 2010)
   - B-2 Public Notice (BLM, December 16, 2010)

C. Scoping Meeting Materials
   - C-1 Project Fact Sheet
   - C-2 Written Comment Form

C-3 Scoping Meeting Presentation

D. Scoping Meeting Sign-In Sheets and Speaker Cards
   - D-1 January 5, 2011 Scoping Meeting Sign-In Sheet and Speaker Registration list
   - D-2 January 6, 2011 Scoping Meeting Sign-In Sheet and Completed Speaker Registration Cards

E. Summary of verbal comments from scoping meeting on January 5, 2011, El Centro, California

F. Summary of verbal comments from scoping meeting on January 6, 2011, Ocotillo, California

G. Comments Received During Scoping Period

2.0 SUMMARY OF PROPOSED PROJECT

This section provides an overview of the Ocotillo Express Wind Energy project located in west Imperial County, approximately 5 miles west of the community of Ocotillo, Imperial County, California.

2.1 Ocotillo Express Wind Energy Project

2.1.1 APPLICANT'S OBJECTIVES

The Applicant's fundamental objective for the proposed action is to construct, operate, maintain, and eventually decommission a 474-MW wind energy facility and associated interconnection transmission infrastructure to provide renewable electric power to California's existing transmission grid to help meet federal and state renewable energy supply and greenhouse gas (GHG) emissions reduction requirements. The Applicant is committed to constructing and operating the project in an environmentally responsible manner and to providing a sustainable source of renewable energy to the State's investor-owned utilities and the public. The Applicant's specific objectives for the project are:

1) To construct and operate a cost competitive 474-MW wind energy facility to provide a renewable and reliable source of power to California's investor-owned utilities (IOU);

2) To locate the project on contiguous lands with high wind potential to maximize operational efficiency while minimizing environmental impacts and water use;

3) To minimize environmental impacts and land disturbance by locating the project near existing transmission infrastructure and roads and by avoiding sensitive environmental areas, recreational resources and wildlife habitats (e.g., Desert Wildlife Management Areas, Areas of Critical Environmental Concern);

4) To develop a source of renewable electric power that can be placed into service in an expeditious manner by interconnecting to San Diego Gas and Electric's (SDG&E) Sunrise Powerlink 500-kV transmission line; and

5) To assist California and its IOUs in meeting the State's Renewables Portfolio Standard (RPS) and GHG emissions reduction requirements, including the requirements set forth in Senate Bill (SB) 1078 (California RPS Program), Assembly Bill (AB) 32 (California Global Warming Solutions Act of 2006), and the Governor's Executive Order S-14-08 to increase the state's Renewable Energy Standard to 33 percent renewable power by 2020. In particular:

    a. California's RPS mandate that requires the State's IOUs to supply 20 percent of California's total electricity through renewable energy generation by 2010, as set

forth in Senate Bill (SB) 1078 (2001-2002 Reg. Sess.) (establishing the California RPS Program) and SB 107 (2005-2006 Reg. Sess.) (accelerating the 20 percent requirement to 2010).

b. California's GHG emission reduction goals set forth in AB 32 that requires the State's GHG emissions be reduced to 1990 levels by 2020.

2.1.2 PROJECT DESCRIPTION

The proposed Ocotillo Express Wind Energy project consists of a 474-megawatt (MW) wind energy facility. Approximately 158 wind turbines, in the 1.5 to 3.0 MW range, would be constructed within a 15,000-acre project site located 5 miles west of the community of Ocotillo, Imperial County, California. In addition to wind turbines the project would include the following components:

1) A 2-acre O&M facility located in the central portion of the proposed project site.
2) An electrical collection system including twenty-three 34.5-kV circuits connecting into a 500-kV transformer and substation located at the central part of the proposed project site adjacent to the approved SDG&E Sunrise Powerlink (SPL) 500-kV transmission line.
3) A connection to the approved SDG&E SPL 500-kV transmission line scheduled for completion in June 2012 across the middle of the proposed project site. The Point of Interconnection would be adjacent to the proposed substation.
4) A 500-kV above-ground stub line to connect the proposed substation to the new SDG&E 500-kV line.
5) A 410-foot by 680-foot substation located adjacent to the interconnection utility switchyard.
6) Up to four permanent meteorological towers.
7) Up to 53 miles of new, permanent access and maintenance roads to provide access and circulation within the proposed project site.
8) For public safety, permanent fences would be erected around the substation/utility switchyard, the O&M building, and meteorological towers.
9) Temporary work areas, borrow areas, a concrete batch plan, and staging areas associated with project construction.

This project requires a Record of Decision from BLM and a Conditional Use Permit from the County of Imperial. Prior to ROW grant issuance, the project will require a Land Use Plan Amendment to the CDCA. The County of Imperial will use the EIS/EIR to issue the Conditional Use Permit for its compliance with CEQA.

3.0 SUMMARY OF SCOPING COMMENTS

This section of the report summarizes the comments raised by the public and agencies during the scoping process. This summary is based upon both written and verbal comments that were received during the NOP/NOI public scoping period and from the project scoping meetings held in El Centro on January 5, 2011, and Ocotillo on January 6, 2011. Table 1 provides a list of commenters including federal, state, and local agencies and organizations that provided written comments during the public review period. There were a number of environmental concerns raised during the public scoping process, which focused on the project's potential effects in several environmental categories. The scoping report summarizes the comments received according to the following major themes:

1) Project description
2) Human environment issues
3) Natural environment issues
4) Indirect and cumulative impacts
5) Project alternatives
6) EIS/EIR administrative and permitting issues.

3.1 Project Description

Several commenters express concerns regarding the reliability and efficiency of wind energy production and transmission. These commenters speculate that a backup energy source, such as a gas-fired energy plant, will be required, and thus, request that the backup energy source be described in the project description. Several commenters request that a discussion of the quality of the site's wind energy resource be included in the environmental analysis. One commenter requests an explanation for why the applicant's wind studies are based on metrological towers that are half the height of the actual proposed wind turbines. Some commenters request that contracts, such as a power purchase agreement, between the applicable public energy utility (SDG&E) and Ocotillo Express, LLC, be identified in the project description. The project's lifespan and plan for decommissioning is also requested for discussion in the EIS/EIR. One commenter recommends that the EIS/EIR identify bonding or financial assurance strategies for decommissioning and reclamation. Another commenter requests a description of how temporary disturbance areas associated with construction will be reclaimed or restored.

Statement of Purpose and Need

The U.S. Environmental Protection Agency (EPA) submitted comments stating the following with regard to the Statement of Purpose and Need:

1) The purpose and need should be a clear, objective statement of the rational for the proposed project.
2) The DEIS[1] should discuss the proposed project in the context of the larger energy market that the project would serve;
3) The DEIS should identify potential purchasers of the power produced; and
4) The DEIS should discuss how the project will assist the State in meeting its renewable energy portfolio standards and goals.

3.2 Human Environment Issues

Aesthetics/Visual Resources

The potential visual and aesthetic impacts of the wind turbine towers and associated above-ground transmission lines are identified as a public concern. Of particular concern, is that the project would nearly surround the community of Ocotillo with wind turbines. Visual impacts affecting the historic Desert View Tower and Mountain Springs Park are also raised as a concern. Some commenters note that views of the sunset for those living east of the project site would be significantly altered. Commenters also note that the subject property and surrounding areas are predominantly open and undeveloped, and consequently, the proposed wind farm could alter views of the Coyote Mountains and overall landscape and diminish the wilderness experience for visitors in the area. Several commenters expressed concern that the project would adversely affect the rural scenic value of the project area and impact views for landowners and users of the surrounding recreation and wilderness areas, which could reduce the visual appeal of the region potentially affecting tourism and revenue to local communities. Concerns about the project's visibility from Interstate 8 and routes leading to and from Anza-Borrego State Park were indicated. One commenter expressed concern about the adverse visual impacts that may result if the facility is subjected to a wildfire. Several commenters request that the EIS/EIR address the light and glare effects that project lighting would have on the night sky in the project area.

One commenter suggested that mitigation include painting the turbine arrays with tones that match the natural landscape.

[1] For purposes of this Scoping Report, the EPA's reference to DEIS is synonymous with EIS/EIR used herein.

Wildfire Hazards

A number of comments were raised regarding the increased risk of wildfire hazards due to the introduction of industrial wind turbines, new transmission lines, substations, and transformers. Commenters stated that these facilities would introduce a new ignition source. One commenter expresses concern regarding impacts affecting aerial firefighting operations in the project area.

Wilderness and Recreation

Several commenters request that the analysis identify the restrictions on public use of the proposed project site during and after construction. One commenter wanted to know if damage or vandalism to the wind turbines could result in the entire site being closed to public access. Several commenters state that the project site has valuable recreational resources including but not limited to camping, hiking, hunting, cycling and off-highway vehicle (OHV) use. One commenter raised concerns about the potential loss of dark sky for scientific study and recreation.

The EPA recommends the following with regard to wilderness and recreation:

1) The DEIS should provide full disclosure of the impacts to recreational users in the project area.

2) The DEIS should clarify what general measures will be incorporated to ensure that OHV and other recreational users are not injured due to hazards associated with the wind turbines, piping, and transmission lines. It is reasonable to assume that OHV users do not always stay on designated trails or may not know which trails are in fact designated. Some precautions regarding safety should be implemented.

Land Use

Several commenters noted that the proposed project would conflict with designated recreational and wilderness land uses in the project area. Commenters note that the analysis should consider the rural community character, quality of life, and potential conflicts with the proposed infrastructure project. One commenter is concerned about the project's consistency with the CDCA Plan Multiple Use Class designation for the project site.

The EPA states that the DEIS should discuss how the proposed action would support or conflict with the objectives of federal, state, tribal or local land use plans, policies and controls in the project area. The term "land use plans" includes all types of formally adopted documents for land use planning, conservation, zoning and related regulatory requirements. Proposed plans not yet developed should also be addressed if they have been formally proposed by the appropriate government body in a written form (CEQ's Forty Questions, #23b).

Noise

A number of the commenters expressed concern regarding potential noise generated by operation and construction of the proposed wind turbines and its effect on adjacent residences, camping areas and special-status animal species in the area. Several commenters request that construction and operation noise of all project components including traffic noise should be analyzed in the EIS/EIR. The EPA stated that decibel levels of the turbines should be evaluated as should the effects of noise levels on a variety of species, as well as effects on property values, residences, and recreational use.

Cultural Resources

Numerous comments were received during the public scoping period concerning the project's potential effect on existing cultural and historic resources in the area, and the need to conduct Native American consultation, particularly government-to-government consultation as defined under Section 106 of the National Historic Preservation Act (NHPA). The environmental analysis should provide a detailed analysis of the cultural resources, including Native American sacred sites, burial/cremation areas, and traditional cultural properties. Consultation for tribal cultural resources is required under Section 106 of the NHPA, which requires a federal agency, upon determining that activities under its control could affect historic properties to consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO).

Public Health and Safety

Several commenters indicate that a potential leak or spill of hydraulic or petroleum based fluids from the turbines, construction equipment or other vehicles during project construction, operation, or maintenance could contaminate soils, surface waters, or groundwater. Other commenters express concern regarding the safety of the turbines with respect to the towers collapsing or losing blades. Commenters were also concerned that the blades used on the turbines are constructed of toxic materials, which may not be disposed of properly. Some commenters indicate that public safety hazards may result from seismic activity in the area due to the presence of fault lines.

Potential hazards affecting radio communications, radar, Border Patrol operations, aircraft flight paths and military training flights and other operations were also requested for analysis. Concerns are expressed for the potential damage and hazards created during high winds. Several commenters are concerned about potential health effects related to low or high frequency noise, wind turbine syndrome, shadow flicker, headaches, sleeplessness, ground vibration, microwave/magnetic field exposure, and other health effects identified in medical studies. One

commenter is concerned about horizontal lighting strikes that may affect the viability of the project. Another commenter is concerned that the project will cause venomous snakes to enter residential areas due to habitat loss resulting from construction and operation of the project.

The EPA recommends that the proponent strive to address the full product life cycle by sourcing wind turbine components from a company that: 1) minimizes environmental impacts during raw material extraction; 2) manufactures wind turbines in a zero waste facility; and 3) provides future disassembly for material recovery for reuse and recycling.

Transportation

Several commenters request that traffic impacts resulting from transporting construction equipment and materials to the proposed project site should be analyzed in EIS/EIR. Several commenters express concern for potential damage to existing roads as a result of the project.

The California Department of Transportation provided the following comments:

1) Visual aspects of the project including glint and glare should be documented not to have any potential impacts to motorists driving on Interstate 8.
2) The NOP identifies that the project is proposing to connect to the SDG&E Sunrise Powerlink transmission line. Any utility crossings of highways or freeways will need an encroachment permit from Caltrans. Supports for overhead lines crossing freeways must comply with these requirements, they:
    a. Should have a minimum lateral clearance of 30 feet from the edge of a through lane and 30 feet from the edge of a ramp lane, when possible.
    b. Shall be located outside the ROW or between the ROW line and access control line if different. Any other placement must be approved by the Division of Design, Chief.
    c. Should not be permitted in medians.
    d. Should not be permitted on cut or fill slopes.
    e. Shall not impair sight distances.
    f. Shall be compatible with access requirements.

Public Services and Utilities

A commenter requests that the project's septic needs be evaluated in the EIS/EIR. In addition, waste disposal, particularly for damaged blades is a concern identified in several comment letters. One commenter expresses concern regarding impacts affecting aerial firefighting operations in the project area.

Social and Economic Conditions

Commenters express concern regarding the potential impact of the project on their property values. Specific topics mentioned include rural blight due to the loss of recreational tourism, and impacts to local labor and suppliers. One commenter requests that a cost/benefit analysis be prepared. Another commenter suggests that the County will lose tax revenue as a result of decreased property values. Several commenters request that the number of local jobs created be identified in the EIS/EIR. One commenter suggests that jobs associated with the project would not be created locally because the local community consists of a high percentage of retired individuals and lacks skilled labor.

Environmental Justice

One commenter stated that a disproportionate number of projects are concentrated in western Imperial County.

Comments submitted by the EPA state that the DEIS should include an evaluation of environmental justice populations within the geographic scope of the project. If such populations exist, the DEIS should address the potential for disproportionate adverse impacts to minority and low-income populations, and the approaches used to foster public participation by these populations. Assessment of the project's impact on minority and low-income populations should reflect coordination with those affected populations.

3.3 Natural Environment Issues

Biological Resources

Biological issues raised by the public and responsible agencies included potential direct, indirect, and cumulative impacts on the overall health of the ecosystem and special-status species known to occur in the region. Specific comments (among others) included potential impacts to rare plants including but not limited to Ocotillo plants (*Fouquieria splendens*), Sonoran sandmat (Euphorbia micromera), and dye Bush (*Psorothamnus emoryi*); and special-status wildlife species including but not limited to peninsular bighorn sheep (*Ovis canadensis cremnobates*), flat-tail horned lizard (*Phrynosoma mcalli),* desert tortoise (*Gopherus agassizii*), golden eagle (*Aquila chrysaetos*) and other raptors and sensitive bird and bat species. One commenter requests that a detailed description of protocols used to conduct plant and animal surveys be provided in the EIS/EIR. Several commenters request that project impacts be assessed for all project components, including proposed infrastructure, transmission lines, roads, and staging areas. One commenter is concerned that the project may use rodenticides causing mortality in owl populations.

A number of comments were received concerning the project's potential effect on local and migratory bird species. Some commenters felt the proposed turbines with their spinning rotors posed increased risk for bird collisions and mortality. Of particular concern to these commenters was the project's potential to harm, injure, or kill golden eagles and other birds of prey that may commonly use the area for nesting, hunting, and/or migration.

Comments submitted by the EPA state the following with regard to biological resources and invasive plant management:

1) Design a comprehensive monitoring program to evaluate impacts on bats and avian species, and discuss design and management measures to minimize adverse impacts to wildlife and native and rare plants.

2) Identify specific measures to reduce impacts to eagles and clarify how the proposed project will comply with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

3) Discuss the applicability of the recently finalized U.S. Fish and Wildlife Service (USFWS) permit regulations (50 CFR parts 13 and 22) to the proposed project. Elaborate on process and/or likelihood of obtaining a permit via these regulations.

4) Commit to additional data collection/analysis to identify areas that are important to bald and golden eagles to ensure proper siting and avoid take of these species.

5) If alternatives cannot be developed that avoid the take of eagles, develop an operational monitoring and adaptive management plan to address this issue.

6) Determine if the proposed project is within the existing or historical ranges of the California condor and consult with USFWS and California Department of Fish and Game (CDFG) early in the process.

7) Describe the potential for habitat fragmentation and obstructions for wildlife movement.

8) The DEIS should include an invasive plant management plan to monitor and control noxious weeds.

Water Resources

A number of comments address the project's potential impacts to local groundwater resources. Specifically, it is requested that the EIS/EIR include an analysis of any potential groundwater usage, including during construction, and groundwater recharge. Several commenters express concerns about the proposed hauling of water from an aquifer in Pine Valley. Groundwater impacts associated with this aquifer is requested for analysis. Impacts concerning flood plains, runoff, and erosion are listed as concerns. Diminishing water supplies provided by the Ocotillo

Mutual Water Company and the Coyote Mutual Water Company are identified as concerns. Several commenters requested that the water source for the proposed batch plant be analyzed in the EIS/EIR. Another commenter wanted to know how wastewater from the batch plant will be handled.

The EPA submitted comments stating that the applicant should coordinate with the U.S. Army Corps of Engineers to obtain a jurisdictional delineation and confirm the presence of Waters of the U.S. (WOUS), in order to determine whether or not a Clean Water Act (CWA) Section 404 permit is needed. If a permit is needed, the DEIS should demonstrate the project's compliance with the CWA 404(b)(1) Guidelines. The DEIS should describe the geographic extent of any WOUS at the project site, as well as drainage patterns at the project location. The DEIS should discuss the steps taken to avoid and minimize impacts to WOUS. To the extent any aquatic features that could be affected by the project are determined not to constitute waters of the United States, the EPA recommends that the DEIS characterize the functions of such features and discuss potential mitigation. Include information on the functions and locations of ephemeral washes in the project area because of the important hydrologic and biogeochemical role these washes play in direct relationship to higher-order waters downstream.

The EPA also recommends that the DEIS identify source water protection areas within the project area; activities that could potentially affect source water areas; potential contaminants that may result from the proposed project; and measures that would be taken to protect the source water protection areas. The DEIS should describe the availability of a water supply for construction and operation of the proposed project and fully evaluate the environmental impacts associated with using the selected water supply. The DEIS should describe whether a temporary batch plant will be installed on site for the needed concrete, estimate the quantity of water required for the concrete mixture and describe the source of this water and potential effects on other water users and natural resources in the project area. The DEIS should provide information on CWA Section 303(d) impaired waters in the project area, if any, and efforts to develop and revise Total Maximum Daily Loads (TMDL). The DEIS should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.

Air Resources and Global Climate Change

Comments were received during the public scoping period concerning the project's potential construction and operational impacts to the local air basin and global climate change. One commenter claimed that the San Diego Union Tribune editorial page had an article on the proposed wind turbine project in its January 6, 2011 edition. According to the commenter, the

article quoted information from UC Riverside professor Michael Allen who suggests that the destruction to desert soils caused by renewable projects may actually increase greenhouse gases more than the renewable facilities would decrease them. Several commenters request that the EIS/EIR analysis address air quality impacts resulting from road construction, trenching, soil displacement and the emission of noxious substances. Project related dust emissions were of particular concern to commenters. Several commenters suggest that the project may generate dust spores, which are known to cause valley fever. Diesel exhaust emissions are identified as a concern. Another commenter suggested that project related dust and diesel emissions will reduce the photosynthetic productivity of native vegetation. Several commenters are concerned with vehicle emissions associated with hauling water and construction materials to the project site.

Comments submitted by the EPA state the following with regard to air resources and global climate change:

1) Imperial County was designated nonattainment for the 2006 PM2.5 standard in October 2009. The air quality analysis should take into account this designation.

2) Existing Conditions - The DEIS should provide a detailed discussion of ambient air conditions, NAAQS, and criteria pollutant nonattainment areas in all areas considered for wind development.

3) Quantify Emissions - The DEIS should estimate emissions of criteria pollutants from the proposed project and discuss the timeframe for release of these emissions over the lifespan of the project. The DEIS should describe and estimate emissions from potential construction activities, as well as proposed mitigation measures to minimize these emissions.

4) Specify Emission Sources - The DEIS should specify the emission sources by pollutant from mobile sources, stationary sources, and ground disturbance. This source specific information should be used to identify appropriate mitigation measures and areas in need of the greatest attention.

5) Equipment Emissions Mitigation Plan (EEMP) - The DEIS should identify the need for an EEMP. An EEMP will identify actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NOx associated with construction activities.

6) The DEIS should consider how climate change could potentially influence the proposed project, specifically within sensitive areas, and assess how the projected impacts could be exacerbated by climate change.

7) The DEIS should consider the cumulative impacts associated with multiple large-scale wind and solar projects proposed in the desert southwest and clarify how existing and/or proposed resources will be affected by climate change.

8) The DEIS should quantify and disclose the anticipated climate change benefits of wind energy. EPA suggests quantifying greenhouse gas emissions from different types of generating facilities including solar, geothermal, natural gas, coal-burning, and nuclear and compiling and comparing these values.

9) Fugitive Dust Control Plan - The DEIS should identify the need for Fugitive Dust Control Plan.

Soils Resources

A commenter requests that a geological report be prepared identifying the existing type of soil, and recommendations for footing size, reinforcement and compaction of soil based on soil density. This commenter also requested that the elevations of the pads relative to existing topography maps be identified.

3.4 Indirect and Cumulative Impacts

One commenter expresses concern about the cumulative capacity of the substation and transmission line the project would interconnect with. Cumulative air quality impacts from traffic related sources to multiple industrial scale mining and energy projects on BLM lands in the area in addition to I-8 traffic impacts are also requested to be analyzed. One commenter recommends that significant cumulative impacts from numerous wind, solar, and transmission infrastructure projects should be analyzed.

Comments submitted by the EPA state the following with regard to indirect and cumulative impacts:

For each resource analyzed, the DEIS should:

1) Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date.

2) Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.

3) Identify all on-going, planned, and reasonably foreseeable projects in the study area that may contribute to cumulative impacts.

4) Identify the future condition of the resource based on an analysis of impacts from reasonably foreseeable projects or actions added to existing conditions and current trends.

5) Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives.

6) Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.

7) Identify opportunities to avoid and minimize impacts, including working with other entities. The DEIS should describe the reasonably foreseeable future land use and associated impacts that will result from the additional power supply. The document should provide an estimate of the amount of growth, its likely location, and the biological and environmental resources at risk.

8) The DEIS should consider the direct and indirect effects of the inter-connecting transmission line for the proposed project, as well as the cumulative effects associated with the transmission needs of other reasonably foreseeable projects.

3.5 Project Alternatives

Several commenters request that an alternative project location be considered in the EIS/EIR.

The EPA submitted comments stating that the DEIS should describe how each alternative was developed, how it addresses each project objective, and how it would be implemented. The alternatives analysis should include a discussion of location, including on-site alternatives that demonstrate a reduction of adverse affects. The DEIS should describe the benefits associated with the proposed technology. The DEIS should clearly describe the rational used to determine whether impacts of an alternative are significant or not. Thresholds of significance should be determined by considering the context and intensity of an action and its effects. The DEIS should identify and analyze an environmentally preferable alternative. Options such as reducing the footprint of the proposed project within the project area or relocating sections/components of the project to other areas, including private land, to reduce environmental impacts should be examined. The DEIS should discuss each alternative's potential to impact air traffic and safety in the vicinity of the proposed project.

3.6 EIS/EIR Administrative and Permitting Issues

Agency Permits/Consultation

A commenter noted that the project should analyze the consistency of the project with state and local agencies and conduct joint environmental review with all responsible agencies. All required permits should be listed and discussed. A commenter requested that early consultation occur with the resource agencies, specifically the CDFG, BLM, and USFWS.

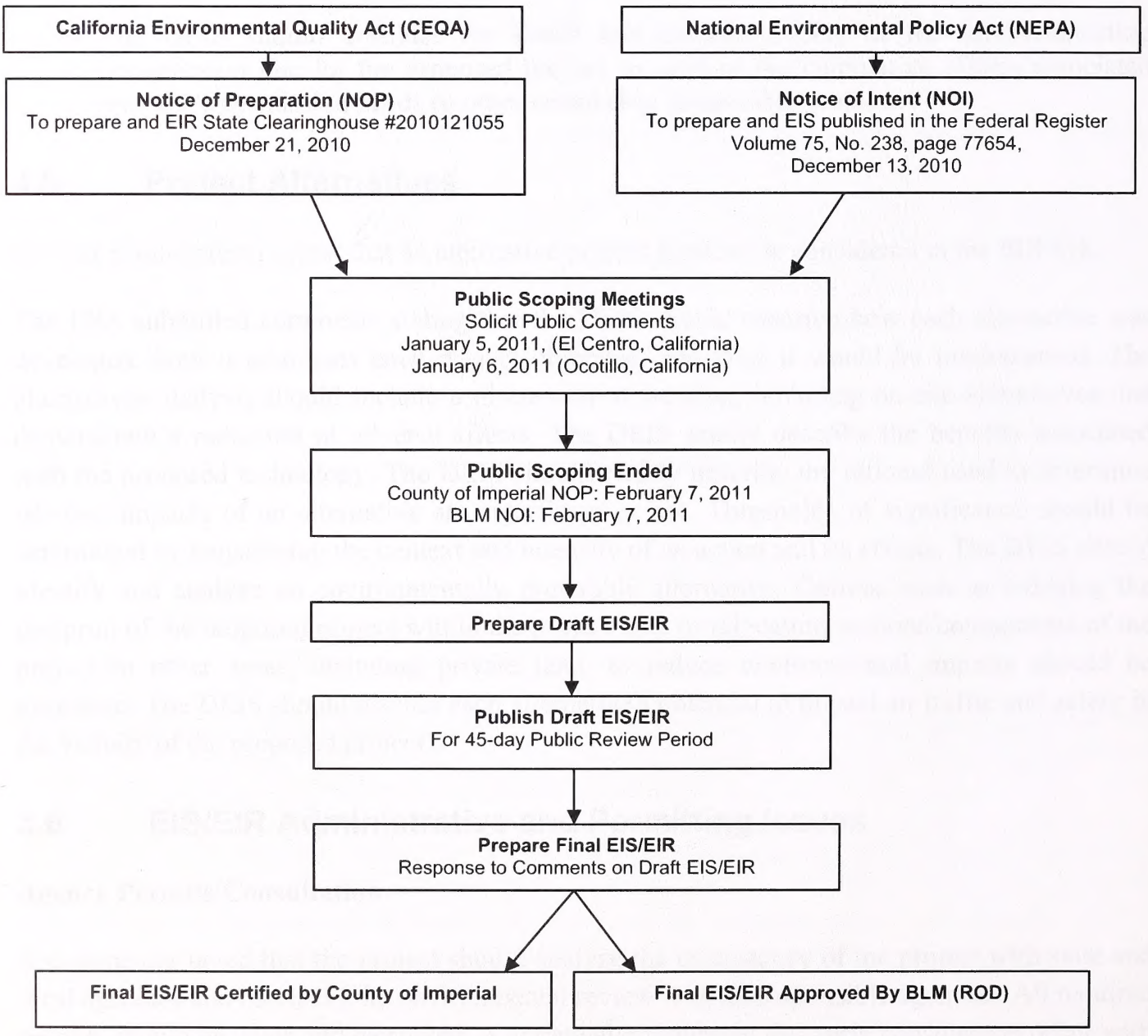
3.7 Issues Outside the Scope of the EIR/EIS

General comments were received that noted support and others that were against the development of the project. Some comments were received requesting copies of the project maps and other information. A comment was also received requesting that the project's public review time be extended. Numerous comments questioned Pattern Energy's integrity, expertise and financial capacity to fund the project.

4.0 SUMMARY OF FUTURE STEPS IN THE PLANNING PROCESS

The EIS/EIR process requires a team of interdisciplinary resource specialists to complete each step. An important part of the environmental planning process is engaging the public and relevant agencies from the earliest stages of and throughout the planning process to address issues, comments, and concerns. The steps of the NEPA and CEQA planning processes and agency authority and decisions to be made are described as follows. Figure 1 provides a summary of the EIS (NEPA) and EIR (CEQA) processes.

Figure 1. NEPA/CEQA Process Flowchart



Identification of Issues

Issues associated with the project were identified through the scoping period, which initiated the planning process. The scoping process and the issues identified through the scoping process are documented in this scoping report.

Data Information and Collection

Much of the necessary resource data and information will be compiled from existing studies prepared for the project or through other local agencies. Additional data and information will be obtained from available sources to update and/or supplement existing data.

Preparing Draft EIS/EIR

Based on collected data, including public comments, a description of the project and alternatives (including no action) will be developed. Only alternatives that meet NEPA and CEQA screening criteria will be considered in detail. Impacts that could result from implementing the project and alternatives will be analyzed and measures to mitigate those impacts will be identified where appropriate.

Draft EIS/EIR and Public Comment Period

The next official public comment period will begin upon publication of the Draft EIS/EIR, which is anticipated to be in mid-summer 2011. This document will evaluate a range of project alternatives including a "No Action" alternative and a "Preferred" alternative and will generally include the following:

1) Executive summary
2) Introduction/overview (including purpose and need for the project)
3) Description of project and alternatives
4) Environmental analysis (including impacts and mitigation measures to minimize impacts)
5) Comparison of alternatives
6) Other NEPA/CEQA considerations.

Upon completion of the Draft EIS/EIR, BLM will publish a Notice of Availability in the Federal Register and the County will file a Notice of Completion with the California State Clearinghouse and a 45-day public comment period will follow. Copies of the Draft EIS/EIR will be distributed to elected officials, regulatory agencies, and interested members of the public. The document will also be available online at the BLM project website:

http://www.blm.gov/ca/st/en/fo/elcentro/nepa/ocotillo_express_wind.html

During this time, public comment on the Draft EIS/EIR will be received.

Response to Comments, Preparation of Final EIS/EIR, Notice of Determination, and Record of Decision

After the public comment period, the BLM and County will respond to comments and prepare a Final EIS/EIR. The availability of the Final EIS/EIR will be announced in the Federal Register, and a 30-day public protest period will follow. Copies of the Final EIS/EIR will be distributed to elected officials, regulatory agencies, and interested members of the public. The document will also be available online at the BLM website, as described previously.

For NEPA, following a 30-day Protest Period and concurrent 60-day Governor's Review, the BLM will resolve valid protests and prepare the Record of Decision. The Notice of Availability for the Record of Decision will be announced in the Federal Register.

5.0 REFERENCES CITED

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act.

40 CFR 1501.1–1501.8. NEPA and Agency Planning.

Federal Register, Vol. 75, No. 238, page 77654, December 13, 2010.

Appendix D
Biological Technical Report

Appendix D

Biological Technical Report

Appendix D

Biological Technical Report

Ocotillo Wind Energy Facility

Biological Technical Report

June 14, 2011

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Ocotillo Wind Energy Facility
Biological Technical Report

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LIST OF ACRONYMS

ABDSP	Anza-Borrego Desert State Park
ABOCC	Advanced Biological Operations Command and Control Center
AMSL	above mean sea level
APC	Avian Point Counts
BLM	Bureau of Land Management
CBOC	California Burrowing Owl Consortium
CDCA	California Desert Conservation Area Plan
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERES	California Environmental Resources Evaluation System
CH	County Highway
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
COM	Construction Operation and Maintenance
Corps	U.S. Army Corps of Engineers
County	County of Imperial
CR	County Route
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DHL	desert horned lizard
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FTHL	flat-tailed horned lizard
FTHLICC	FTHL Interagency Coordinating Committee Rangewide Management Strategy
GPS	global positioning system
HELIX	HELIX Environmental Planning, Inc.
kV	kilovolt
MCV	The Manual of California Vegetation, 2nd Edition
MW	megawatt
NVCS	National Vegetation Classification System
O&M	operations and maintenance
OEWF	Ocotillo Express Wind Facility
OHV	off-highway vehicle
OHWM	ordinary high water mark
PBS	Peninsular Bighorn Sheep
PEIS	Programmatic Environmental Impact Statement
ROD	Record of Decision
RPW	relatively permanent water body
RSA	rotor sweep area
RWQCB	Regional Water Quality Control Board

SDG&E	San Diego Gas and Electric
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TLUA	temporary linear use area
TNW	traditional navigable waters
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Water Discharge Requirement
WEAP	Worker Education Awareness Program
WRI	Wildlife Research Institute
WTG	wind turbine generator
WTGAC	Wind Turbine Guidelines Advisory Committee
WUS	Waters of the U.S.

1.0 INTRODUCTION

Biological resource studies were conducted for the Ocotillo Wind Energy Facility (OWEF) project to provide the project proponent, the Bureau of Land Management (BLM), the County of Imperial (County), resource agencies, and the public with current biological data to satisfy the review of the proposed project under the California Environmental Quality Act (CEQA) and other federal, state, and county regulations. This report describes the vegetation communities, plant species, and wildlife observed or detected within the proposed OWEF site and identifies sensitive resources. It also identifies sensitive species that have potential to occur within the proposed OWEF site, but were not observed or detected. In addition, project impacts are assessed in this report, and mitigation is proposed to offset significant impacts from the proposed project.

The proposed OWEF site is located within an approximately 12,565.5-acre right-of-way boundary (hereafter referred to as the proposed OWEF site) near the town of Ocotillo, Imperial County, California (Figure 1). The proposed OWEF site is located within 4 U.S. Geological Survey 7.5-minute quadrangle maps: Carrizo Mountain, Coyote Wells, In-Ko-Pah Gorge, and Painted Gorge (Figure 2). The majority of the proposed OWEF site is on Bureau of Land Management (BLM)-administered lands, except for a 26-acre single private parcel, referred to as the Hamilton parcel. In addition, several project features are proposed outside of the right-of-way boundary, including the underground collection system that would connect Site 2 to the substation/switchyard and the extension of Evan Hughes Highway (Figure 3).

1.1 PROJECT DESCRIPTION

The proposed project consists of construction, operations and maintenance (O&M), and decommissioning of a 465 megawatt (MW) wind energy facility on approximately 12,435.6 acres, 99.8 percent of which is public land managed by the BLM. The expected operation life of the OWEF is at least 30 years, consistent with the BLM right of way grant.

Facilities and Components

Facilities for the OWEF would consist of up to 155 wind turbine generators (WTGs), above-ground and below-ground electrical transmission/collection systems for collecting the power generated by each WTG, an electrical substation, interconnection switchyard, access roads, 4 meteorological towers, a biological monitoring observation tower (referred to as the Advanced Biological Operations Command and Control Center [ABOCC]), and an O&M building (Figure 3). The dimensions of proposed WTGs include a hub height of 262 feet and a rotor diameter ranging from 351 to 371 feet.

The approximately 50-foot tall proposed ABOCC observation tower would be located in the central portion of Site 1 and would include a platform with a 360-degree view of the area. A high resolution video camera and an advanced radar system (Merlin Avian Radar System) would be mounted on top of the observation tower. The radar system would

include vertical and horizontal Doppler radar and tracking software that would link radar detections to a video monitoring system. The observation tower would also include an air-conditioned central monitoring control room equipped with radar monitors, video monitors and controls, and radio telemetry data monitors to allow for real-time monitoring. The Applicant proposes having a full-time biologist on site during daylight hours for the first 3 years of operation (and up to 2 additional years of operation) to monitor for biological resources, specifically raptors, migratory birds, bats, and Peninsular bighorn sheep (*Ovis canadensis nelson*; PBS). A detailed description of the biological observation tower was submitted to the U.S. Fish and Wildlife Service (USFWS) and BLM in March 2011 (OE LLC 2011).

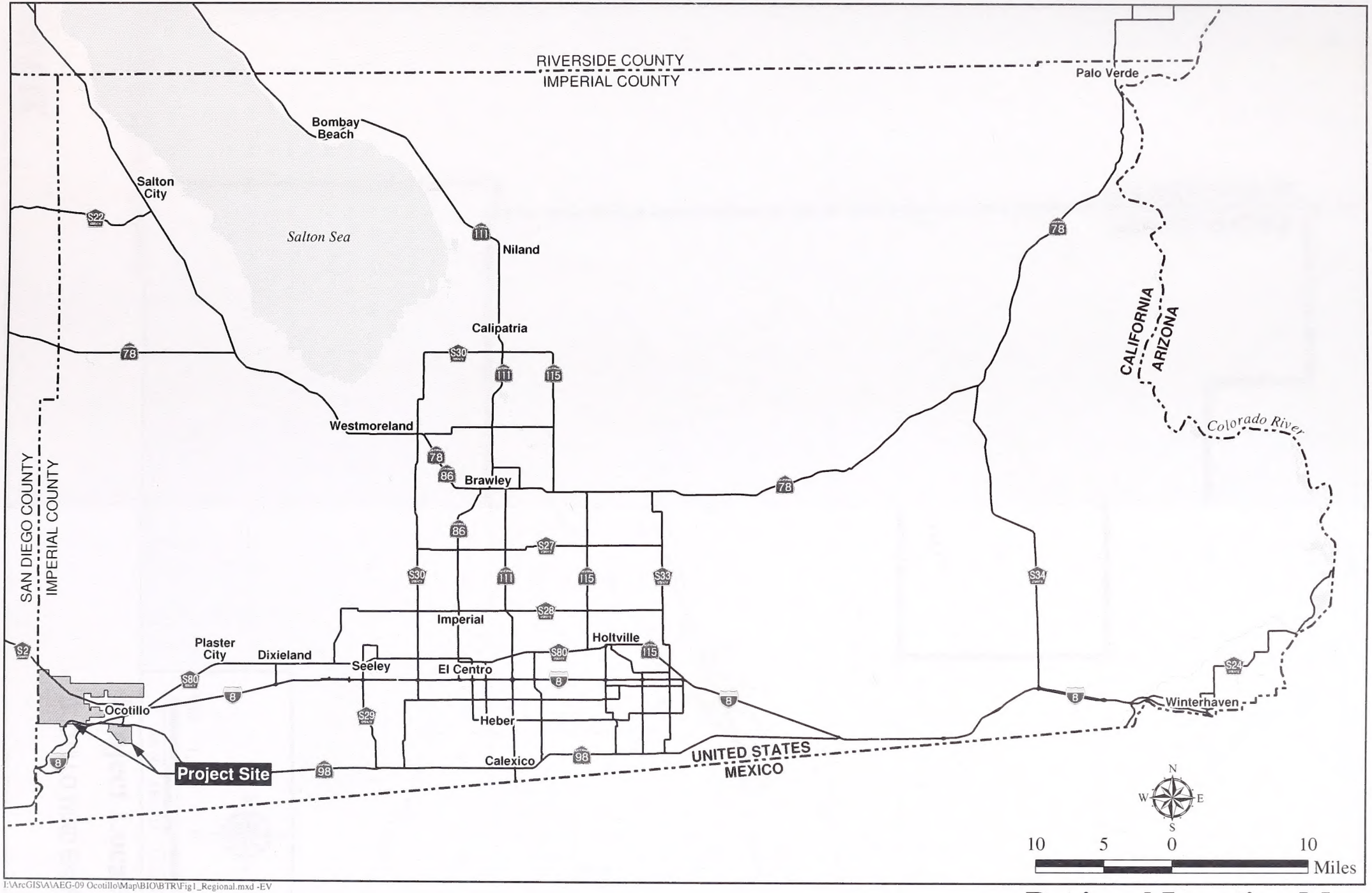
Temporary Construction Workspace, Yards, and Staging Areas

The project would be built in 2 phases, and the construction period of each of the 2 phases is anticipated to be completed over a period of 12 to 15 months. The second phase is anticipated to begin approximately one year following the completion of the first phase of construction. Approximately 246 employees would be required during the construction phase. In general, employees would work six 10-hour days (Monday through Saturday) during daylight hours. However, to meet the schedule, it may be necessary to work early morning, evenings, or nights, and/or Sundays during the foundation concrete pours to take advantage of the potential biological construction constraints for PBS and the cooler times of the day, and during the WTG erection period to take advantage of times when the wind speed is below the maximum safe working conditions.

Major construction activities at each turbine location include foundation construction; crane pad construction; wind turbine component unloading and laydown; and turbine erection. As directed by the tower supplier and geotechnical engineer's recommendations, foundations would be excavated, constructed of steel reinforced concrete, and backfilled with native soil. Crane pads are required to support the crane used during erection and lifting the turbine components into place. Turbine components will arrive to each turbine site by truck. A crane will unload each component and stage the component in a specific pre-determined location within the temporary construction area. The delivery trucks will then move either backward or forward to the nearest vehicle turn-around location.

Five to 10 WTGs can be erected weekly. Construction of Phase I is anticipated to commence in September 2011, with the final mechanical completion, commissioning, and electrical testing of Phase I planned to be completed before year-end 2012. Construction of Phase II is anticipated to commence in 2013.

Table 1 provides a summary of the temporary and permanent impacts associated with the proposed project.



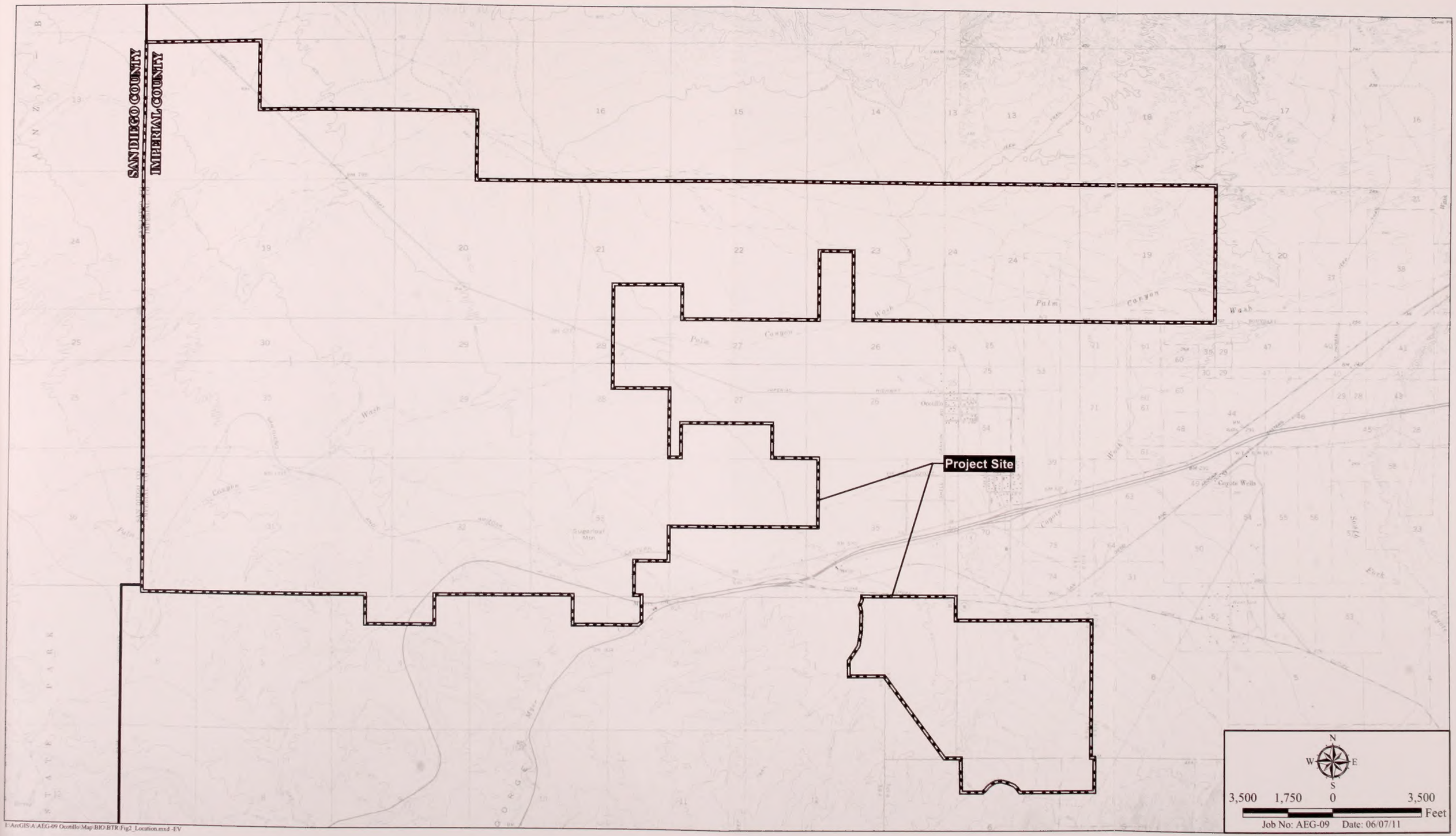
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Regional Location Map

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 1

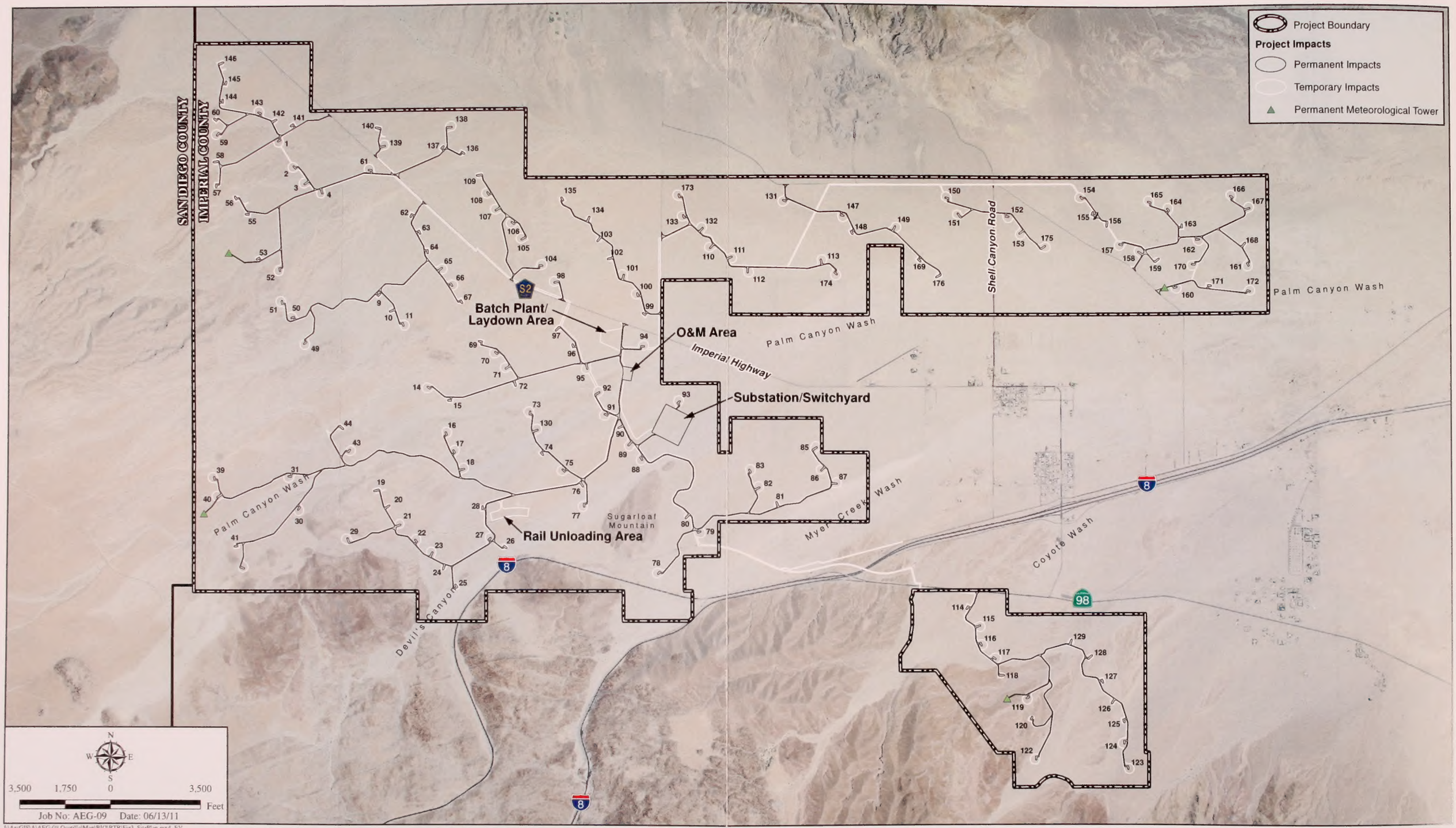


Project Location Map

OCOTILLO WIND ENERGY FACILITY

Figure 2

HELIX Environmental Planning



Site Plan

OCOTILLO EXPRESS WIND PROJECT

Figure 3

HELIX
Environmental Planning

Table 1
PROPOSED PROJECT COMPONENTS AND MAXIMUM DISTURBANCE ACREAGES

Facility Component	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Turbine Foundations and Crane Pads	249.0	34.3
Access Roads/Collector Lines[1]	212.5	110.5
Substation/Switchyard	0	31.7
O&M Facility	0	3.4
Railroad Unloading Area	10.0	0
Batch Plant and Laydown/Parking Area	11.6	0
Meteorological Towers	0	1.1
Gravel Source(s)[2]	0	15 (if needed)
TOTAL	**483.1**	**196.0**

[1]Assumes 20-foot wide access roads would be constructed within a 36-foot wide temporary road disturbance area (Proponent's Plan of Development [OE LLC 2011] assumed 16-foot wide permanent access roads). Disturbance acreage based on 42 linear miles of access roads for the proposed project.
[2]Proponent's Plan of Development [OE LLC 2011] assumed one or more gravel or sand source areas totaling up to 15 acres.

Temporary Construction Workspace, Yards, and Staging Areas

Temporary laydown and parking areas would be located within the batch plant/laydown area, rail unloading area, and substation area to stage and store construction equipment and materials, and for construction staff parking (Figure 3). During construction, the laydown area may be fenced and gated to control access. Portions of the laydown area may be graveled depending on the soil conditions. The rail unloading area may be used if project equipment is shipped to the site by rail. After construction, all temporary disturbance areas would be revegetated.

The proposed project would include a network of 20-foot-wide permanent roads that would provide access to each WTG location and to the O&M building upon completion of construction. The 20-foot road width may be required by Imperial County Fire Department; however the road width may be reduced to 16 feet during final design. For the purposes of this biological technical report, a 20-foot-wide permanent road width has been assumed. During the course of construction, these access roads would be up to 36 feet in width to facilitate the travel of large tracked cranes. These construction roadways would be graded and compacted for use and the area in excess of the 20-foot permanent roadway would then be decompacted, stabilized, and revegetated at the conclusion of construction.

In addition to the crane travel paths, the underground collection system would parallel the access road network. The underground collection system would include the construction

of twenty-three 34.5 kilovolt (kV) electrical collection system circuits that would connect into a new high voltage main transformer located at the proposed project substation/switchyard. The collection lines connecting one WTG to the next and to the proposed substation would be buried underground adjacent to (generally outside of) the 36-foot-wide construction roadway areas. Construction of the underground collection systems would involve a 2-foot wide trench with a disturbance width of approximately 15-feet, which would be revegetated following construction. Above-ground components of the collection system would include pad mounted transformers alongside each WTG, junction boxes throughout the permanent footprint of the OWEF and the main substation/switchyard (which will be fenced).

The permanent footprint of the proposed substation/switchyard would be approximately 25 acres, and the substation would be located adjacent to the new San Diego Gas & Electric (SDG&E) Sunrise Powerlink 500 kV transmission line, which is to be constructed through the middle of Site 1. Sunrise Powerlink is scheduled for completion in October 2012, and the proposed project's Point of Interconnection would be adjacent to the substation (Figure 3). An approximately 600-foot-long overhead transmission line would connect the switchyard to the new Sunrise Powerlink 500 kV transmission line. In addition, an approximately 150-foot-long overhead transmission line would connect the proposed switchyard and proposed substation. No other overhead transmission lines are proposed for the project.

The proposed project would include an approximately 400-foot diameter temporary work area at 93 of the 155 WTG sites that would be used for the crane pad, equipment laydown, assembly area for the WTG blades, and other construction related needs. The temporary work area at the remaining 62 WTG sites would be smaller and would be used for the crane pad and space necessary to construct the WTG. Within the WTG temporary work area, a crane pad is required for supporting the large tower erection crane. The crane pad will consist of a compacted native soil or compacted aggregate base gravel area and the approximate dimensions of each crane pad would be 60 by 100 feet. The crane pads will remain in place following construction for potential future maintenance at the tower. The topsoil from the crane pads, if any, would be used at adjacent locations during restoration and revegetation activities.

The proposed project would also include a 12-acre batch plant/laydown area immediately south of County Highway (CH) S2 (Imperial Highway) in the central portion of Site 1 (Figure 3). The batch plant would be used for preparing and mixing the concrete used for the foundations for the WTGs, the transformers at the substation, the O&M building, and other project facilities. The batch plant would be cleared of all surface vegetation, graded, and compacted as needed. Prior to installation of the batch plant facilities, the area may be covered with gravel, as required, to support the circulation of trucks and other equipment. Concrete ready-mix trucks would be washed out at designated locations designed for that purpose. At those locations, all effluent would be contained, and refuse concrete would be restored. Following completion of construction, all components of the batch plant would be demobilized and the site would be restored to BLM standards.

Erosion Control and Storm Water Drainage

Erosion and sediment control measures would be implemented during construction. These would include stabilization measures for disturbed areas and structural controls to divert runoff. Prior to construction and as required by law, a Storm Water Pollution Prevention Plan (SWPPP) would be developed, approved, and implemented.

Vegetation Treatment and Weed Management

During construction, O&M, and decommissioning phases, the project proponent would abide by invasive weed control procedures as developed in cooperation with the BLM and Imperial County. The establishment of non-native invasive vegetation can be limited by early detection and eradication. The project proponent would work with the BLM and Imperial County to develop procedures to control the spread of invasive plants. If chemical treatment is applied, it would be consistent with BLM's Record of Decision (ROD): Vegetation Treatments Using Herbicides (BLM 2007a), as supported by the Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments Using Herbicides (BLM 2007b). Specific control measures are described in the project proponent's Plan of Development.

Waste and Hazardous Materials Management

All construction related waste would be stored within a temporary use area until it is collected for transport to a final landfill destination. Materials that can be recycled would be stored and transported separately. The project proponent would coordinate with local landfills prior to commencement of construction. Hazardous materials are typically limited for a project of this nature. The project proponent would work with the BLM and other appropriate agencies to implement a hazardous materials management plan, spill prevention and response plan, and waste management plan. The waste management plan would include requirements for closed-container trash receptacles in order to not attract ravens.

Site Security and proposed Fencing during Construction and Operation

The security fences surrounding the substation, interconnection switchyard, meteorological towers, and the O&M building would be the only permanent fencing associated with the proposed project. The type and height of this security fence, and the need for temporary security fencing around temporary construction areas, would be determined based on an assessment of risk prior to commencement of construction. During the construction phase, access roads may have gates or signs installed, as necessary, to control public access for safety reasons. However, access would be preserved for private landowners and BLM-permitted uses. Prior to construction and prior to installation of temporary fences, the Proponent will work with the BLM to determine the locations and types of temporary fences, if any. Directional lighting (motion activated safety and security lighting) will be installed at the substation, interconnection switchyard, and O&M facility.

Operations and Maintenance

Routine maintenance activities consisting of visual inspections, oil changes, and gearbox lubrication will result in regular truck traffic on access roads throughout the year. Access roads will be graded as necessary to facilitate O&M. Major maintenance activities, such as road grading, will be scheduled to provide the least disturbance to the sensitive biological resources noted for the site (i.e., flat-tailed horned lizard [*Phrynosoma mcallii*; FTHL] and PBS).

Annual maintenance activities requiring the shutdown of WTGs will be coordinated to occur during periods of little or no wind to minimize the impact on the amount of overall energy generation. Annual maintenance procedures will consist of inspection of WTG components and fasteners.

Decommissioning

A decommissioning plan would be developed consistent with the BLM Wind Energy PEIS and ROD (BLM 2005a, 2005b) and approved by the BLM. Best Management Practices and stipulations developed for construction activities will be applied to similar activities during decommissioning. Reclamation includes removal and disposal of the turbine tower, above-ground electrical tower components, and substation components. All below-ground infrastructure, such as tower foundations and electrical collection lines, will be removed to 3 feet below the ground surface, and the remaining infrastructure that is deeper than 3 feet will be left in place. OWEF roads will be removed and the affected areas restored. Roads may be left in place at BLM's or private land owner's discretion. All roads and tower pads would be restored in accordance with the BLM-approved decommissioning plan.

2.0 ENVIRONMENTAL SETTING

2.1 PROJECT SETTING

The proposed OWEF site is located within an approximately 12,565.5-acre right-of-way boundary (hereafter referred to as the proposed OWEF site) near the town of Ocotillo, Imperial County, California (Figure 1). The proposed OWEF site is located within 4 U.S. Geological Survey 7.5-minute quadrangle maps: Carrizo Mountain, Coyote Wells, In-Ko-Pah Gorge, and Painted Gorge (Figure 2). The majority of the proposed OWEF site is on Bureau of Land Management -administered lands, except for a 26-acre single private parcel, referred to as the Hamilton parcel. In addition, several project features are proposed outside of the right-of-way boundary, including the underground collection system that would connect Site 2 to the substation/switchyard and the extension of Evan Hughes Highway (Figure 3).

The northern portion of the proposed OWEF site (Site 1) is generally situated north of Interstate 8 (I-8), from the Imperial/San Diego County border on its western edge, to

approximately 1.5 miles northeast of the town of Ocotillo on its eastern edge. The northern area includes several distinct features, including a portion of the I-8 Island, which is undeveloped rocky and hilly terrain between the eastbound and westbound lanes of I-8, Sugarloaf Mountain, and a portion of the San Diego and Arizona Eastern railroad tracks (Figure 2). County Highway S2 bisects the northern project area, and I-8 passes through the southern portion of the northern project area. The southern area (Site 2) is much smaller than the northern area, and the majority is south of State Route (SR) 98. The site plan is shown on Figure 3.

The proposed OWEF site is in the Yuha Desert, which is in the Colorado Desert region of the larger Sonoran Desert. The 7 million-acre Colorado Desert region extends from the border of the higher-elevation Mojave Desert in the north to the Mexican border in the south, and from the Laguna Mountains of the Peninsular Ranges in the west to the Colorado River in the east. The Yuha portion extends from the Jacumba Mountains in the west to the historic West Side Main Canal near the City of El Centro, and from Plaster City in the north to south of Mount Signal in Mexico.

The Colorado Desert is a desert of much lower elevation than the Mojave Desert to the north, as much of the land lies below 1,000 feet elevation. Mountain peaks rarely exceed 3,000 feet. Common habitat includes sandy desert, scrub, palm oasis, and desert wash. Summers are hot and dry, and winters are cool and moist. Anza-Borrego Desert State Park (ABDSP), located mostly in eastern San Diego County, but jutting into Imperial County, is the bioregion's largest recreation area, covering 600,000 acres (The California Environmental Resources Evaluation System [CERES] 2011).

The proposed OWEF site is a designated BLM Limited Use Area in which all motorized vehicles are restricted to the use of marked, designated routes only. BLM dirt roads exist throughout the proposed OWEF site, and a dirt road occurs along the 500-kV transmission line which traverses the middle of the proposed OWEF site running southwest to northeast. Illegal off-highway vehicle (OHV) trails criss-cross portions of the proposed OWEF site, and some areas of the proposed OWEF site are regularly used for camping, firearm activities, and OHV use. The U.S. Border Patrol regularly patrols the proposed OWEF site by vehicle and helicopter. Despite the above-mentioned usage, the majority of the proposed OWEF site is relatively undisturbed.

Surrounding land uses include ABDSP to the west and BLM land to the north, east, and west of the proposed OWEF site. The Coyote Mountains Wilderness Area is located north of and adjacent to the proposed OWEF site, the Jacumba Wilderness Area is located south of and adjacent to the proposed OWEF site, and the Yuha Basin Area of Critical Environmental Concern occurs southeast of the proposed OWEF site. The town of Ocotillo and several scattered residences outside of the town are located between the northern and southern portions of the proposed OWEF site.

Elevations within the proposed OWEF site range from approximately 1,490 feet above mean sea level (AMSL) in the southwest portion of the proposed OWEF site down to 300 feet AMSL in the northeast portion of the proposed OWEF site. The proposed OWEF

site generally decreases in elevation from the west to the east, with the Coyote Mountains (located within the Coyote Mountains Wilderness Area) to the north of the proposed OWEF site, and the Jacumba Mountains (located within the Jacumba Mountains Wilderness Area) to the west and south of the proposed OWEF site. To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

Vegetation within the proposed OWEF site consists of a variety of desert scrub habitat types. Several dry desert washes cut through the proposed OWEF site and run generally from west to east: Palm Canyon Wash cuts through the center of the northern portion of the proposed OWEF site; Myer Creek Wash cuts through the southern portion of the northern portion of the proposed OWEF site; a portion of Coyote Wash cuts through the northwest portion of the southern portion of the proposed OWEF site; and several additional unnamed washes cut through the proposed OWEF site.

Soil series within the proposed OWEF site include Rositas-Orita-Carrizo-Aco, Rock Outcrop-Rillitio-Beeline-Badland, and Rock Outcrop-Lithic Torriorthents, as determined by Winzler and Kelly (2010).

2.2 REGIONAL MANAGEMENT PLANS

Currently, there are 2 habitat management plans approved and being implemented by the BLM that have jurisdiction over the proposed OWEF site. These include the California Desert Conservation Area (CDCA) Plan (BLM 1980, as amended), and the Flat-tailed Horned Lizard Rangewide Management Strategy (2003). The proposed OWEF site is adjacent to the Yuha Desert Management Area, which is located south of I-8.

2.3 CRITICAL HABITAT

No USFWS designated critical habitat occurs within the proposed OWEF site. Critical habitat for PBS occurs immediately to the south of Site 1 (USFWS 2009a). Essential habitat (USFWS 2000) for PBS in the proposed OWEF site includes the southwestern portion and an area in the western portion of Site 1, as well as the southwestern portion of Site 2.

3.0 FIELD SURVEY METHODS AND RESULTS

3.1 FIELD SURVEY METHODOLOGY

Surveys identified the vegetation communities and sensitive plants and wildlife observed or detected within the proposed OWEF site. In addition, this report identifies sensitive species with potential to occur within the proposed OWEF site but that were not observed or detected. Surveys discussed in this report were primarily conducted by HELIX Environmental Planning, Inc. (HELIX), with some surveys conducted by subconsultants.

Each of the surveys discussed below were conducted in accordance with the biology survey protocols prepared for the project (HELIX 2010a), which were approved by BLM.

3.1.1 Vegetation Mapping

Vegetation mapping within the proposed OWEF site was done through a combination of field surveys and aerial photo interpretation. The aerial photos were scaled at 1" = 400'. Vegetation data points were taken opportunistically with a global positioning system (GPS) to aid in aerial photo interpretation. There are limitations to aerial photo interpretation in the desert, as the surface soils and geology often are more influential on the aerial photograph signature than the vegetation.

The BLM required that the National Vegetation Classification System (NVCS) be used for this project. The Manual of California Vegetation, 2nd Edition (MCV; Sawyer et al 2009) is the California extension of the NVCS. The mapping units used in this report reflect the system presented in the MCV.

The MCV includes an introductory section on the difference between vegetation classification and vegetation mapping. This section includes the following thoughts on differences between vegetation classification and mapping.

> A vegetation map is a symbolic representation of visually distinct groupings of plants. A vegetation classification can afford much more detail and description. Classifications can afford much more floristic and structural details than those perceptible in aerial photographs, presented in digital signatures, or depicted on maps.
>
> Another important difference between a classification and a map is the issue of scale. A map is limited by the resolution of its base imagery and by its interpretation at a certain scale, but a classification need not be.

The difficulty in interpreting aerial photos and the points presented in the MCV regarding the differences between mapping and classifying vegetation speak to the difficulty in applying this classification system anywhere, and it is even more difficult in the desert. This report presents our best effort to communicate the environment within the proposed OWEF site given the limitations detailed here. The accuracy of this mapping could be improved but only at tremendous expense for vast additional hours of field work, including in some situations, mapping lengthy vegetation boundaries with the aid of a GPS.

Not all of the vegetation types mapped within the proposed OWEF site are listed in the MCV. These vegetation types are discussed here as "provisional" (e.g., provisional Wolf's cholla scrub). There are also mapping units that are essentially unvegetated (e.g., rock outcropping and badlands) that are not covered in the MCV. That these are not included in the MCV is noted in the vegetation descriptions.

3.1.2 Focused Species Surveys

Focused surveys for several sensitive animals within the proposed OWEF site are described below. A summary of survey dates, personnel, and type of survey is included as Appendix A.

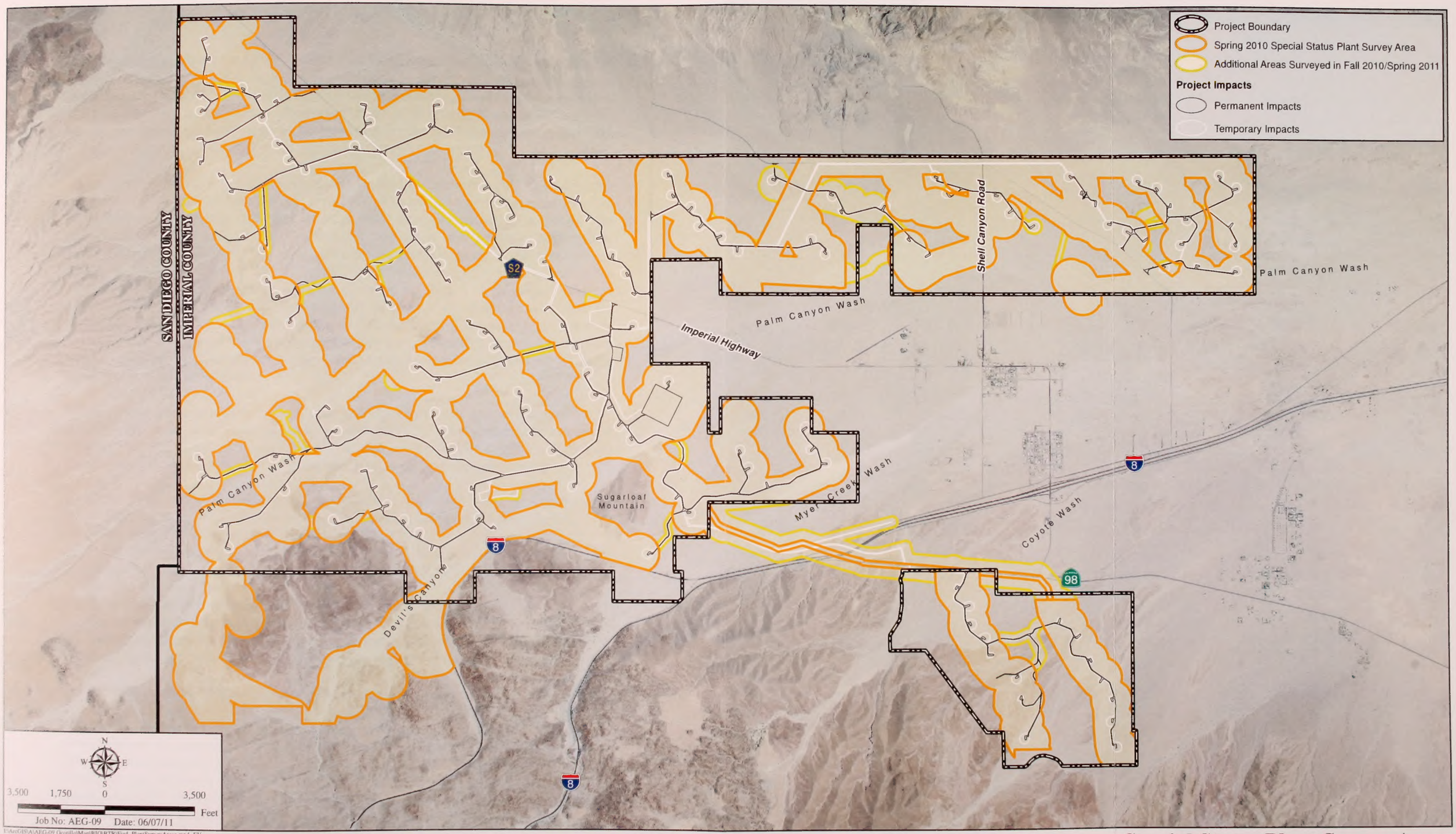
3.1.2.1 Special Status Plants

HELIX biologists and subcontracted botanists conducted special status plant surveys to document the presence and abundance of special status plants within the proposed OWEF site. The surveys were conducted during the spring and fall 2010 and winter of 2010/2011 as well as spring 2011. The spring 2010 surveys were conducted during March and April 2010, fall and winter surveys were conducted in October through December, and surveys of redesigned portions of the project were conducted in January, February, and April 2011 (Appendix A).

Prior to conducting the survey, HELIX conducted a preliminary review of the California Natural Diversity Database (CNDDB 2010), California Native Plant Society (CNPS 2011), and Calflora (2010) databases and compiled a list of 52 special status plant species that have potential to occur within the proposed OWEF site.

Data were collected and submitted in accordance with the BLM's Survey Protocols for National Environmental Policy Act/Endangered Species Act Compliance for BLM Special Status Plant Species (BLM 2009) and with the California Department of Fish and Game's (CDFG's) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009).

The spring 2010 surveys focused on the footprint of a preliminary project design with a 500-foot buffer from all proposed project features (e.g., turbine locations, access roads, staging areas, borrow sites, and the O&M facility; Figure 4). The preliminary project design was a build-out of the majority of the proposed OWEF site. The special status plant survey was conducted to achieve 100 percent visual coverage of the 500-foot buffer areas. The acreage within the 500-foot buffer survey areas totaled nearly 8,000 acres in spring 2010 and nearly 7,000 acres in fall 2010. Areas where wind turbines/development were not proposed under the 2010 project footprint were excluded from the surveys. The winter 2010/2011 survey covered the footprint of the redesigned project footprint with an approximately 500-foot buffer from revised project features. The spring 2011 surveys focused on an additional 220 acres due to project footprint changes. A 100 percent coverage survey of the 500-foot buffer areas was completed in spring (March/April 2010) by walking transects. Each botanist compiled a species list, including highly invasive weed species, and documented the location and number of special status plant species on an aerial photo, with a GPS, and with photographs. Each botanist kept a GPS track log during the surveys to document their survey areas. In addition, each botanist also documented the locations of highly invasive weed species encountered. A survey report was prepared that presented the results of the spring 2010 surveys (HELIX 2010b).



Special Status Plant Survey Areas

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Figure 4

A 100 percent coverage survey of the 500-foot buffer areas was also completed in fall (October-December 2010) by walking transects to look for fall-blooming special status plant species. The methods of the fall 2010 survey were conducted in accordance with the methods of the spring survey. The survey results of the fall 2010 survey are included in this biological technical report. A survey report for the fall 2010 surveys is currently being prepared.

The project proponent redesigned the project site plan in December 2010 following the completion of the fall special status plant surveys. The site plan was redesigned to avoid biological resources and cultural resources that were documented in 2010. The redesigned site plan included project features outside of the 500-foot buffer areas surveyed by HELIX in 2010. Therefore, HELIX completed a special status plant survey in January/February 2011 to survey for fall/winter-blooming plant species within the redesigned portions of the site that were not surveyed in 2010. The redesigned portions of the site were also surveyed in spring (April) 2011 by walking transects to look for spring-blooming special status plant species. The methods of the spring 2011 survey were conducted in accordance with the methods of the spring 2010 survey. The survey results of the spring 2011 survey are included in this biological technical report and a separate report will be prepared.

Special status plant species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations. Special status species are of relatively limited distribution and typically require unique habitat conditions. Special status plant species are defined as meeting one or more of the following criteria:

1. Listed as threatened or endangered, or candidates for future listing as threatened or endangered under the California Endangered Species Act (ESA) or federal ESA;
2. Listed as species of concern by CDFG;
3. Plants "presumed extinct in California" (California Rare Plant Rank [CRPR] 1A), plants ranked as "rare or endangered in California" (CRPR 1B and 2), as well as CRPR 3 and 4 species;
4. Plants listed as rare under the California Native Plant Protection Act;
5. Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated in local or regional plans, policies, or ordinances; or,
6. Any other species receiving consideration during environmental review under CEQA.

The BLM designates sensitive species as those requiring special management considerations to promote their conservation and reduce the likelihood and need for future listing under ESA. BLM Sensitive Species (BLM 2004) include all Federal Candidate and Federally Delisted species which were so designated within the last 5 years, and CRPR 1B species that occur on BLM lands. For the purposes of this analysis, all BLM Sensitive Species are considered to be special-status species.

3.1.2.2 Flat-tailed Horned Lizard

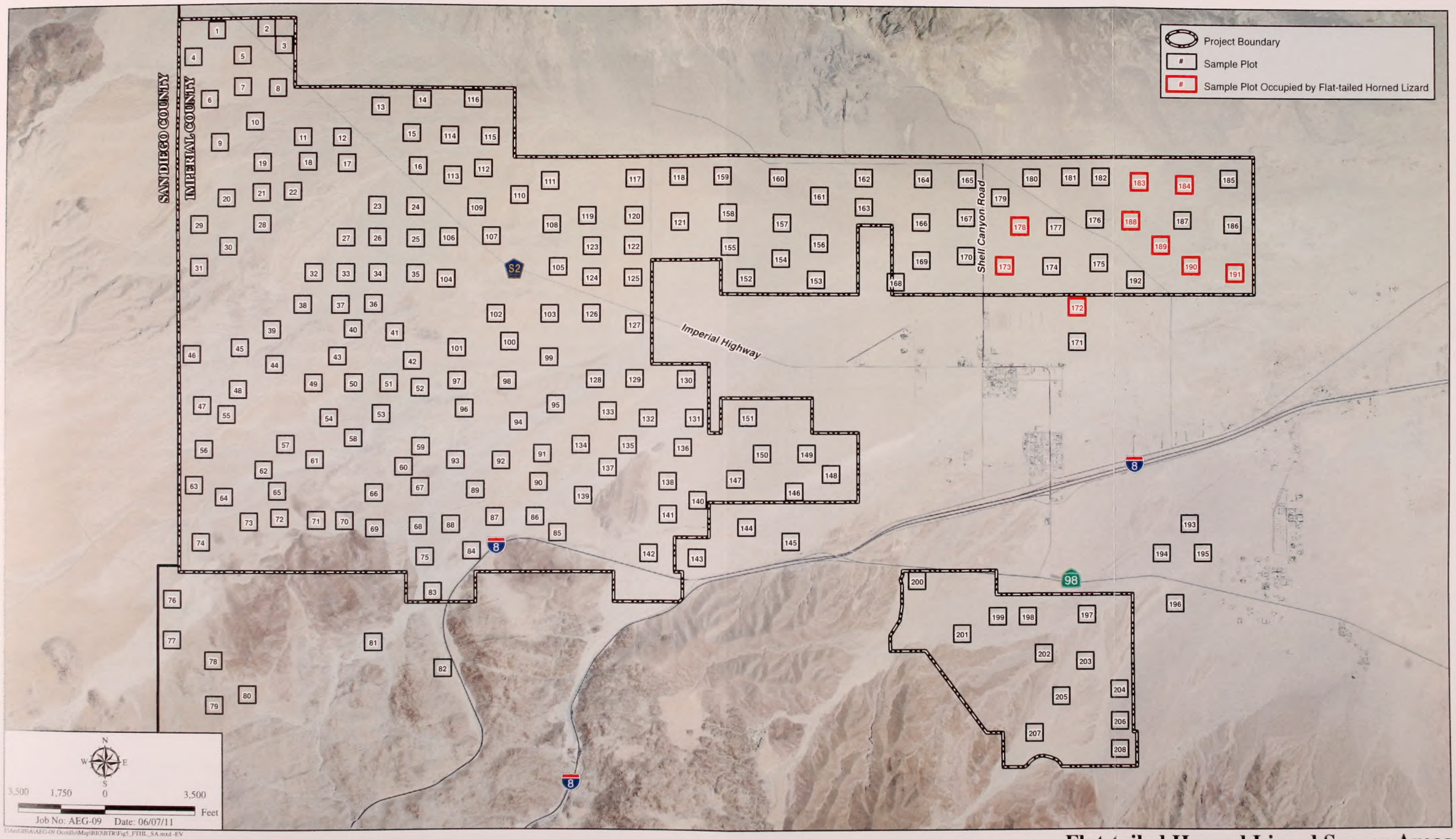
HELIX biologists Jasmine Bakker, Kimberly Davis, Erica Harris, Robert Hogenauer, Jason Kurnow, Erik LaCoste, Amy Mattson, Stacy Nigro, Dale Ritenour, Eric Piehel, and independent contractor Renee Owens (Owens Wildlife Biology, LLC) conducted a presence/absence survey for the FTHL (HELIX 2010c). Each of the biologists is authorized by CDFG to conduct FTHL surveys. The surveys were conducted from June 2 to August 3, 2010 (Appendix A), in accordance with the survey protocol described in the FTHL Interagency Coordinating Committee Rangewide Management Strategy (FTHL ICC 2003). Biologists surveyed a total of 208 10-acre sample plots (Figure 5), which resulted in 10 sample plots per U.S. Geological Survey (USGS) section (the numbers of sample plots were scaled based upon the number of USGS sections within the proposed OWEF site). The FTHL Rangewide Management Strategy states that sample plots shall be 2.5 acres in size; however, the BLM changed the size of each sample plot to 10 acres (BLM 2010). Sample plots were strategically located in order to sample a wide range of habitats, including areas with the highest potential for FTHL (Figure 5).

Two sample plots (plots 144 and 145) were located outside the proposed OWEF site along the alignment of the proposed underground electrical collection system. The majority of the 10-acre sample plots were surveyed by a team of 3 biologists for one hour; occasionally, a sample plot was surveyed by a team of 2 biologists for 1.5 hours or a single biologist for 3 hours. Biologists walked north-south transects spaced 30 to 60 feet apart within each of the 10-acre areas resulting in a pace of approximately 0.5 miles per hour. Surveys were conducted when air temperatures were between 75 and 100 degrees Fahrenheit. Surveyors conducted searches for live animals, as well as for horned lizard sign such as scat and tracks. FTHL found were recorded and photographed when possible. A California Native Species Field Form was completed for each discovery and the location was identified using GPS. FTHL were identified to species based upon descriptions provided in the FTHL Rangewide Management Strategy (FTHLICC 2003) and information provided by the BLM and CDFG.

Two different horned lizard species are known to occupy the proposed OWEF site: the FTHL and the desert horned lizard (DHL; *Phrynosoma platyrhinos*). Sign of these 2 lizard species cannot be differentiated (Turner and Medica 1982 as cited in FTHL ICC 2003; Crayon, Jack pers. comm. May 3, 2010). FTHL were identified to species based upon descriptions provided in the FTHL Rangewide Management Strategy (FTHL ICC 2003) and information provided by the BLM and CDFG.

Driving surveys within the proposed OWEF site were routinely conducted while accessing areas of the proposed OWEF site for the FTHL surveys, as well as for other surveys. During driving surveys, biologists drove slowly and scanned the sides of road, the road itself, and hummocks near the road for horned lizards.

After the 208 sample plots were completed from June 2 to August 3, 2010, HELIX conducted follow up surveys of 12 sample plots between August 3 and August 6, 2010 on the west side of Shell Canyon Road, including a walking survey of Shell Canyon Road and



Flat-tailed Horned Lizard Survey Areas

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Figure 5

a focused driving survey of the dirt roads on the west side of Shell Canyon Road. These plots were selected because they occurred near areas where HELIX documented FTHL and because the initial surveys resulted in multiple horned lizard scat detected in each plot; however, no horned lizards were observed. During these revisits, biologists spent an increased amount of time surveying compared to the initial surveys (i.e. revisits were conducted by 3 biologists for 1.5 hours each).

3.1.2.3 Barefoot Banded Gecko

HELIX subconsultant Eric A. Dugan and his staff conducted CDFG protocol-level surveys for the barefoot banded gecko (*Coleonyx switaki*) within the project footprint and a 50-foot buffer from impact areas (Figure 6; Dugan 2011). All surveys met the standards of the protocol methodology (CDFG 2010a), providing 100 percent coverage of the project footprint, including a 50-foot buffer. Four visual nocturnal surveys were conducted at least 2 weeks apart between May 31 and July 29, 2010 (Appendix A). Surveys were conducted by walking 10-foot wide transects (except where topography such as steep slopes or large boulders prevented safe ingress or egress). All surveys were completed between 1.5 hour after sunset and 1:00 AM when ambient temperatures were above 70 degrees Fahrenheit at the start of the surveys. Surveyors identified areas of suitable habitat which was categorized as very low, low, and high-quality based on information from CDFG and BLM. Very low quality habitat consisted of sandy washes and creosote flats. Low quality habitat consisted of landscapes with few rocks and areas largely defined as flat and sandy. High quality habitat consisted of areas containing large boulders and rock outcroppings, rocky foothills, and rocky washes. The project proponent redesigned the project site plan in December 2010 following the completion of the 2010 barefoot banded gecko survey. The site plan was redesigned to avoid biological resources and cultural resources that were documented in 2010. The redesigned site plan included project features outside of the 2010 barefoot banded gecko survey areas. The portions of the proposed project that fall outside the 2010 survey areas will be surveyed in 2011.

3.1.2.4 Raptor Migration Study

The purpose of the raptor migration study was to document the diurnal raptor activity within the study area and calculate relative raptor abundance in order to provide a risk assessment from operations and maintenance for these species. The methods were developed in coordination with the BLM and were based on the recommendations provided in the California Energy Commission's (CEC's) Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC and CDFG, 2007).

HELIX biologists Kimberly Davis, Erica Harris, Rob Hogenauer, Jason Kurnow, Erik LaCoste, Debbie Leonard, Dale Ritenour, and Eric Piehl, along with HELIX subconsultants John Konecny and Renee Owens, conducted the raptor migration field work (which are different from the Avian Point Counts [APC] discussed below). Independent contractor Marie Barrett assisted on one date (Appendix A). Biologists conducted migration counts at 4 locations (Figure 7) over an 8 calendar-week period

during the 2009 fall migration period (September 24 to November 10, 2009), over a 10 calendar-week period during the 2010 spring migration period (March 22 to May 27, 2010), over a 15 calendar-week period during the fall 2010 migration period (August 23 to November 12, 2010), and over a 10 calendar-week period during the spring 2011 migration period (March 21 – May 27, 2011). The total number of observation hours during each study included 763 observation hours in fall 2009, 952 observation hours in spring 2010, and 577.5 observation hours in fall 2010 (the number of observation hours during spring 2011 have not been compiled at the time this report was finalized). A survey report documenting the results of the fall 2009 and spring 2010 migration counts was prepared (HELIX 2010d) and a survey report documenting the results of the fall 2010 migration counts was prepared (HELIX 2011a). A survey report is currently being prepared to summarize the results of the spring 2011 migration counts.

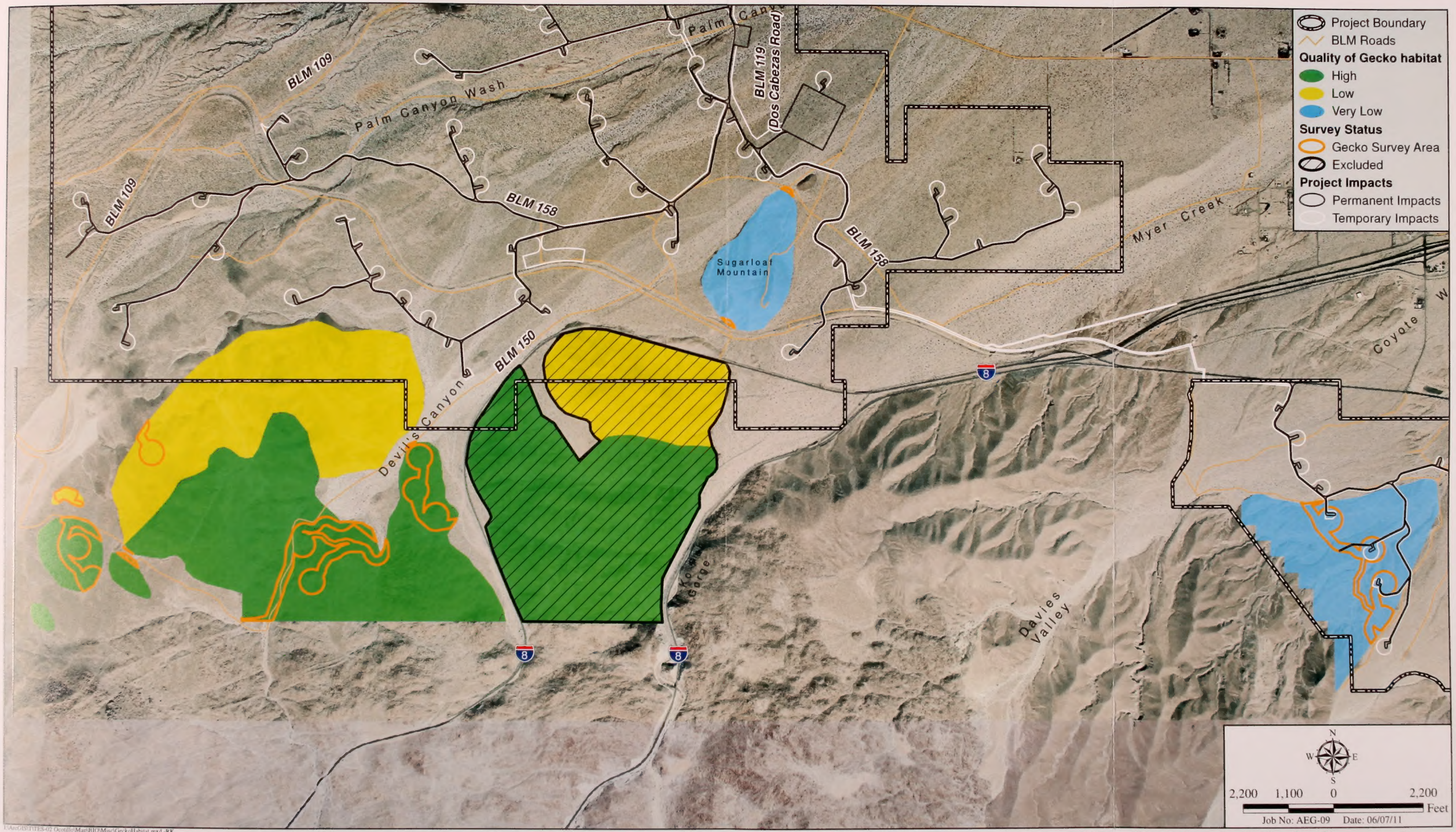
The methods of the migration study were developed in coordination with the BLM and were based on the recommendations provided in the California Energy Commission's (CEC's) Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC 2007).

During the migration counts, surveyors were stationed throughout the proposed OWEF site to scan the sky and record bird migration data. The 4 migration count locations (Locations A through D; Figure 7) were spaced approximately 2 miles apart generally along a southwest-northeast axis across the site. Migration count locations were located to maximize the likelihood of detecting potential north-south and east-west migration through the proposed OWEF site. The fall 2010 and spring 2011 migration counts were conducted only at Locations A, B, and D.

Two of the migration count locations were also APC locations. Note that the raptor migration counts and APC surveys are different studies. Although a raptor migration count and APC may have occurred on the same day, these surveys were never done concurrently.

Location A was on top of a hill at approximately 1,275 feet AMSL in the southwest portion of the proposed OWEF site. Location B was located on Sugarloaf Mountain at approximately 1,000 feet AMSL. Location C was located along CH S2 at approximately 450 feet AMSL, west of the town of Ocotillo and immediately adjacent to the proposed OWEF site. Although outside of the proposed OWEF site, this location was positioned between Locations B and D so that there was observation overlap. Location D was in the northeast portion of the proposed OWEF site near Shell Canyon Road at approximately 350 feet AMSL. The observation locations each offered wide fields of view in all directions. The positions of Locations A and D were adjusted slightly at the start of the third week in fall 2009 in order to improve visibility.

Migration counts were staggered to either begin shortly after sunrise or to conclude before sundown to cover the bimodal activity of diurnal bird migrants. Surveyors methodologically scanned the sky and recorded all bird species, number of individuals, direction of movement, estimated distance from the surveyor, and estimated height above



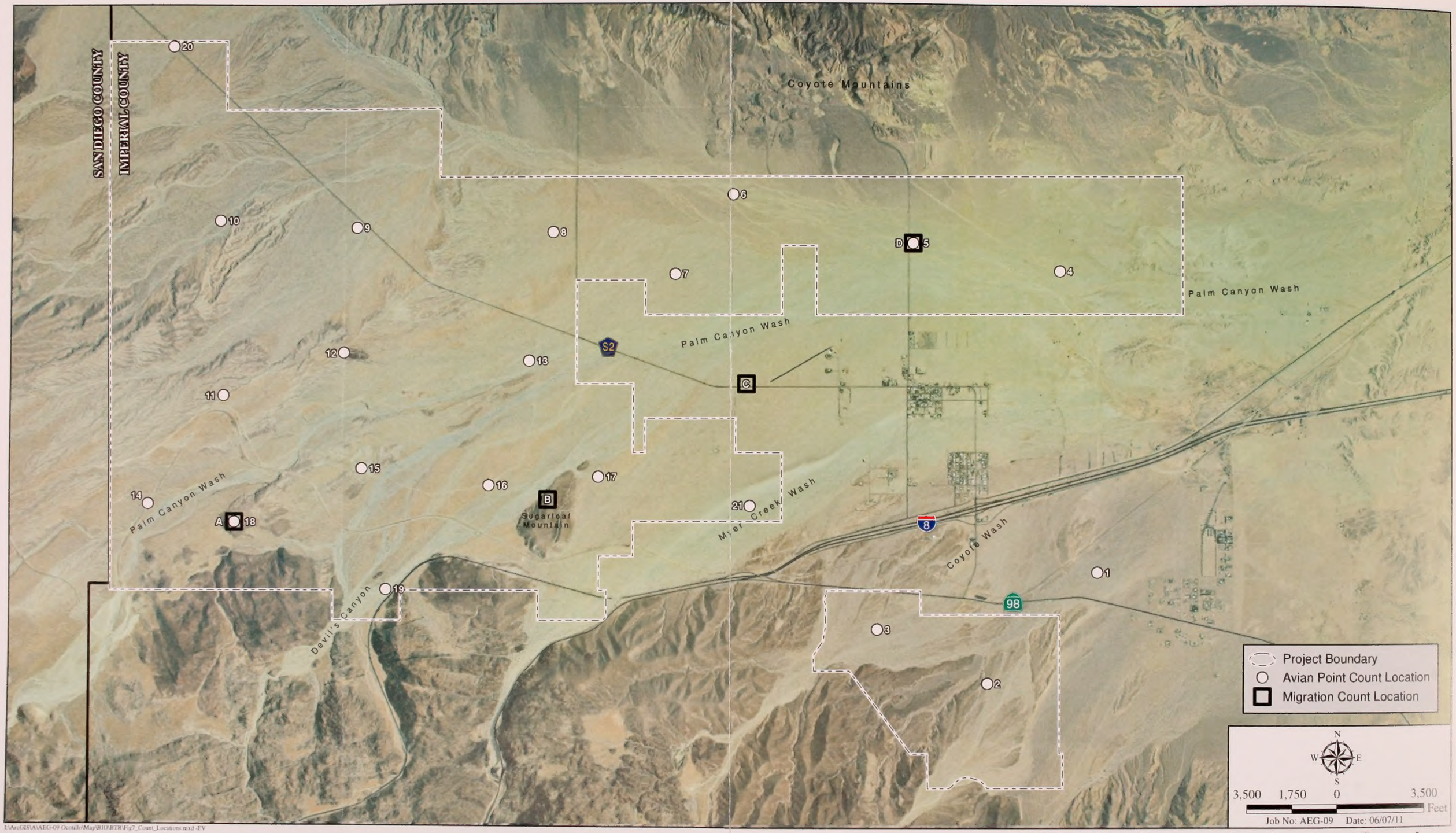
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Barefoot Banded Gecko Survey Areas

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Figure 6



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Migration Count and Avian Point Locations

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Figure 7

the ground. Surveyors documented activity on standardized datasheets for each date. Weather conditions (e.g., temperature, wind speed, wind direction, cloud cover, etc.) at the start and end of each day were also recorded.

3.1.2.5 Avian Point Count

HELIX conducted APCs at 21 locations (Figure 7) approximately weekly over a one-year period (September 1, 2009 to August 31, 2010). The APCs were conducted in accordance with the survey protocols approved by BLM (HELIX 2010a) and generally in accordance with the bird use count methods described in the CEC's Guidelines for reducing bird impacts to wind development (CEC 2007). The goal of the APCs was to record bird species, abundance, behavior, and flight characteristics from selected sampling locations over a 30-minute period. A total of 50 weeks of point counts were conducted over the one-year period (APCs were not conducted the week of November 29 to December 5, 2009 or the week of January 17 to 23, 2010). Each APC location was visited once per week (the one exception is that Location 13 was not surveyed the week of February 21 to 27, 2010).

Twenty-one APC locations were established approximately one mile apart throughout the site (Locations 1 to 21; Figure 7). The CEC Guidelines allow for locations to be 5,200 feet apart for large wind resource areas with good viewsheds, which is the case for the proposed OWEF site. The APC locations were chosen based on viewsheds, elevation, and habitat types. Each location had good visibility in all directions, with no major impediments impairing the range of view. Locations also covered a wide range of elevations, from approximately 340 feet AMSL (Location 4) to approximately 1,250 feet AMSL (Location 18). Finally, APCs were strategically located to sample different microhabitats. Although each of the locations occurred in desert scrub habitat, several of the locations were within and adjacent to dry desert washes (e.g., Locations 6, 10, 13, 14, and 21), while other were located on or adjacent to hilly topography (e.g., Locations 2, 12, 18, and 19).

At each APC location the species, number of individuals, flight height, flight direction, distance from observer, and behavior (directional flight, perched, flapping flight, soaring, etc.) was recorded over a 30-minute period. Weather conditions (temperature, wind speed and direction, and cloud cover) were recorded at the start and end of the 30-minute survey period using a hand-held Kestrel anemometer (a wind speed meter). Species were detected visually with the aid of binoculars and by identifying songs and call notes. All observations were recorded on standardized data sheets. APCs were conducted once per week at each location. Efforts were made to sequence observation times so that locations were surveyed both in the morning and in the afternoon and under varying weather conditions. The results of the yearlong APCs were provided in a survey report (HELIX 2010e).

3.1.2.6 Golden Eagle Nest Survey

HELIX contracted with the Wildlife Research Institute (WRI) to conduct surveys of golden eagle (*Aquila chrysaetos*) nest sites in eagle territories within the proposed OWEF site and up to a 10-mile spatial buffer along the outer boundary (Figure 7). Areas in Baja California, Mexico that occur within the 10-mile buffer were not surveyed. The surveys were conducted in accordance with the guidance provided in the USFWS Interim Golden Eagle Inventory and Monitoring Protocols (USFWS 2010a). WRI conducted helicopter surveys in 4 known territories (referred to as Coyote Mountains West, Coyote Mountains East, Table Mountain, and Carrizo Gorge) in March 2010 (Appendix A). A hand-held GPS was used to record the helicopter flight path and the location of each nest site. Nest-specific information was documented by 2 eagle biologists in the helicopter, and each nest site was photographed. In addition to helicopter surveys, WRI conducted ground surveys of an additional suspected golden eagle territory (referred to as Mountain Springs) in April 2010 (Appendix A). Helicopter surveys were not allowed by USFWS in the Mountain Springs area because of potential disturbance to PBS. The results of the 2010 golden eagle nest surveys were provided in a survey report (WRI 2011).

3.1.2.7 Burrowing Owl

The CDFG requested HELIX to follow The California Burrowing Owl Consortium (CBOC) Guidelines (CBOC 1993) for burrowing owl (*Athene cunicularia*) habitat surveys within the proposed OWEF site. The CBOC Guidelines include 3 phases: (1) habitat assessment; (2) focused burrow search; and (3) surveys for owls during the breeding season. HELIX conducted a burrowing owl habitat assessment, a burrow survey, and focused owl surveys in accordance with the CBOC Guidelines and with project's survey protocols that HELIX prepared and the BLM approved (HELIX 2010b).

HELIX conducted a (Phase I) habitat assessment within the proposed project footprint in January 2010. HELIX biologists evaluated the project site to determine if it contained areas that met the basic requirements of owl habitat, which include open expanses of sparsely vegetated areas (less than 30 percent canopy cover for trees and shrubs), gently rolling or level terrain, small mammal burrows (especially those of antelope ground squirrel [*Ammospermophilus leucurus*]), and/or fence posts, rock, or other low perching locations. Suitable owl habitat was found to be present throughout the proposed OWEF site. As such, additional surveys were required.

HELIX conducted preliminary burrowing owl searches as part of Phase I, which coincided with wintering burrowing owl protocol requirements from January 16 through 29, 2010 (Appendix A). The CBOC and CDFG define the wintering survey period as December 1 to January 31 (CBOC 1993; CDFG 1995). The winter resident owl survey was conducted to gather data on burrowing owl use of the proposed OWEF site during the non-breeding season. The winter resident burrowing owl surveys were conducted in areas with the highest potential for burrowing owl use (i.e., low hilly regions, deep canyon washes with numerous rodent colony holes, and along both sides of the railroad tracks that cross through the proposed OWEF site; Figure 8). Biologists walked slowly

and methodically through each of the survey areas to search for burrowing owls and to evaluate and map potential owl burrows, including those that showed signs of recent owl occupation.

HELIX conducted a (Phase II) focused burrow search in spring 2010 within the project footprint (i.e., proposed project features plus a 500-foot buffer from proposed project features; Figure 8). The focused burrow search was conducted concurrently with the spring rare plant survey in March and April 2010. Biologists walked transects within the survey area to allow for 100 percent coverage. All potential burrows, burrowing owl sign, or burrowing owls were recorded with a GPS. Burrowing owl sign includes pellets/casting (e.g., regurgitated fur, bones, and insect parts), white wash (excrement), and feathers.

HELIX conducted a (Phase III) focused burrowing owl consisted of wintering resident and breeding season surveys between June 14 and July 8, 2010 for each of the potential burrow locations mapped during Phase II burrow search. The breeding season is defined by CDFG (1995) and CBOC (1993) as the period between April 15 and July 15. Surveys consisted of 4 site visits, each on a separate day, conducted approximately one week apart (Appendix A). Surveys took place from 2 hours before sunset to one hour after sunset or from one hour before sunrise to 2 hours after sunrise in accordance with the CBOC Guidelines. Biologists took care to not disturb potentially nesting burrowing owls, and used a combination of techniques to determine occupancy and nesting status, including observing the locations from a distance using binoculars and spotting scopes, and carefully walking through the habitat.

In addition, HELIX also conducted follow-up breeding season surveys between July 26 and August 3, 2010 (Appendix A). The purpose of the follow-up breeding season surveys was to search for burrowing owls and owl burrows in areas of the project site that were not extensively surveyed during other surveys conducted by HELIX during the spring and summer 2010 (i.e., rare plant surveys, FTHL survey, or APC/migration surveys). The results of the Phase I, II, and III surveys were provided in a survey report (HELIX 2010f).

The new areas that were added to the preliminary project footprint that fell outside of the 2010 breeding season survey areas were surveyed for burrowing owl burrows as part of the fall 2010 special status plant surveys (Figure 8). Burrows that were mapped during the fall 2010 special status plant surveys will be surveyed during the 2011 burrowing owl breeding season and a report will be prepared to summarize the methods and results of these surveys. Burrowing owls also were mapped opportunistically during other surveys, including during the fall 2010 special status plant surveys.

3.1.2.8 Bats

HELIX subconsultant Matt Rahn, Ph.D. and his staff conducted surveys for bat species during the winter (January/February), spring (May/June), summer (July/August), and fall (October/November) seasons of 2010 (Rahn Conservation Consulting 2011).

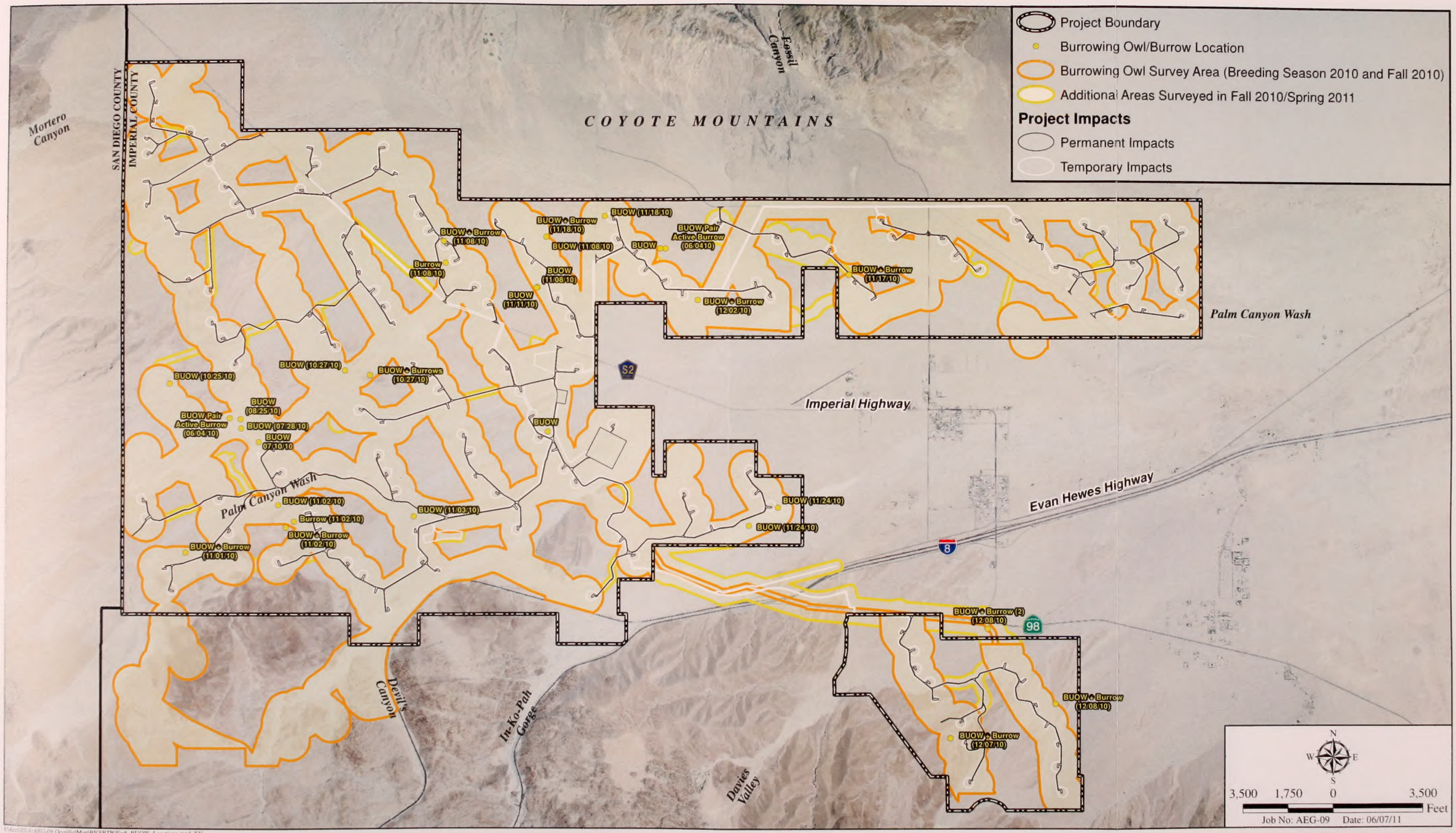
Surveyors used AnaBat™ SD1 Bat Detectors that download all recorded echolocation signals into a compact flash memory card that could be linked to a GPS unit. The GPS provides the location of the echolocation calls as they are recorded during an evening. A thermal imaging camera was used to estimate the number of bats present along the survey route (relative abundance), and document the behavior of the bats (commuting, foraging, drinking, etc.). The thermal camera was also used to estimate the height that the bats are flying above ground level and their direction of travel.

A minimum of 9 nights of active AnaBat surveys were conducted during each season to determine the presence of resident and migratory bat species. Dates of surveys can be found in Appendix A. Biologists followed established trails and access roads within the proposed OWEF site in 3 distinct areas, maximizing coverage of the entire proposed OWEF site (Figure 9). Survey routes were stratified across the various vegetation communities and habitat features (e.g. rocky outcrops, cliffs, caves, or water sources) in order to maximize the detection of bats. Three distinct "loops" were established within the proposed OWEF site that could be accessed by vehicle and/or walked at night (in roughly 5 to 7 hours), beginning at dusk. Each loop was divided into 3 "starting points." Biologists began the survey at "point 1" the first night, "point 2" the second night, and "point 3" on the final night, reducing temporal biases along the entire transect. Areas with high bat activity were surveyed for an additional 10 to 15 minutes, identifying important areas of activity (e.g. foraging, drinking water, and potential roost sites). The survey routes also incorporated the 21 APC locations as discussed above. Surveyors collected data at each of the 21 APC locations for an additional 10 to 15 minutes per night. Ambient environmental conditions were also recorded each night, ensuring that data is collected only during those conditions that are optimal for bat activity. Finally, surveys along the areas adjacent to the proposed OWEF site attempted to locate and identify potential roost sites, resources (e.g. water or potential foraging areas), and bat activity areas adjacent to the proposed OWEF site to determine if any bat species are actively using these areas, and identify a path of emergence that the exiting bats follow.

In addition, echolocation monitoring stations were installed on the 2 meteorological towers located within the proposed OWEF site (Figure 9). Each tower recorded echolocation calls at approximately 6 feet and 150 feet. These stations collected data autonomously from April 18 through November 31, 2010. The data were analyzed using software filters to remove those calls that were the result of wind or insect background-noise. Analysis was conducted for all calls recorded during the project period, identifying bat species where possible.

3.1.2.9 Peninsular Bighorn Sheep

Walter Boyce, Ph.D. interviewed knowledgeable biologists and surveyed the project area for the PBS over 8 days from November 2009 through March 7, 2010. Dr. Boyce provided the Proponent a list of potential project impacts to PBS based on the preliminary site plan that included WTGs in the southwest portion of Site 1 and a list of recommendations for the project following the completion of the work (Boyce 2010).



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Burrowing Owl Survey Areas

OCOTILLO EXPRESS WIND PROJECT

Figure 8

HELIX Environmental Planning

SAN DIEGO COUNTY
IMPERIAL COUNTY
Coyote Mountains
West Tower
Palm Canyon Wash
Palm Canyon Wash
Palm Canyon Wash
S2
East Tower
Sugarloaf Mountain
Myer Creek Wash
8
Coyote Wash
Devil's Canyon
98
Project Boundary
Meteorological Tower
Survey Routes
N
W
E
S
3,500 1,750 0 3,500 Feet
Job No: AEG-09 Date: 06/07/11
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Bat Survey Areas

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 9

HELIX's and its subcontractor, Western Tracking Institute, LLC, began conducting a 3-month survey for PBS sign in the proposed OWEF site in March 2011 using a combination of ground surveys and motion-triggered cameras. The Western Tracking Institute, with assistance from HELIX biologists, have begun searching for PBS sign within the 3 PBS Essential Habitat areas within and adjacent to the proposed OWEF site, including the western portion of Site 1, the southwestern portion of Site 1, and the southwestern portion of Site 2. The I-8 Island is not included in the PBS survey area because PBS are already known to occur in this area of the project. Biologists are surveying for PBS and PBS sign (e.g., scat, tracks, hair, bedding areas, etc) on foot and with the aid of binoculars in the steep, rocky portions of the project where no project components are proposed, as well as the desert washes and desert scrub habitat adjacent to the steep, rocky areas. PBS sign is being documented using a GPS and with photographs, and is being categorized as either recent or historic sign.

The initial detailed inventory of the PBS survey areas for PBS and PBS sign will be conducted from March 1-20, 2011. Three follow-up searches for sign will be conducted at approximately 3-week intervals between late March and early June to look for recent PBS use of the Project Area. Nine remote cameras have been installed in strategic locations within the Project Area to help determine PBS use and movement. The motion-triggered remote cameras record photos to a memory card and memory cards will be retrieved periodically throughout the 3-month survey.

The Western Tracking Institute team is being led by Barry Martin, with assistance from Conner O'Malley. HELIX biologists assisting with the survey include George Aldridge, Kimberly Davis, Erica Harris, Shelby Howard, Jason Kurnow, and Amy Mattson.

3.1.2.10 Jurisdictional Delineation

Field work for the jurisdictional delineation was conducted in October and November 2010. The results presented below are consistent with input provided by the U.S. Army Corps of Engineers (Corps) (pers. comm. Mattson et al 2010). The Corps concurred with the field determination. Field work conducted in November was conducted following CORPS input.

Field work for the jurisdictional delineation was conducted in October and November 2010 by HELIX biologists W. Larry Sward and Stacy Nigro (Appendix A). The results presented here are consistent with input provided by the Corps on November 12, 2010. On that date, representatives from the Corps' San Diego field office (Michelle Mattson, Meris Bantilan-Smith, and Lanika Cervantes), and from the Corps' Cold Regions Research Laboratory (Robert Lichvar and Katherine Curtis) met with HELIX staff (W. Larry Sward, Shelby Howard, and Barry Jones) on the OWEF site and concurred with the fieldwork conducted by HELIX on October 22, 2010. As such, field work conducted in November followed these methods.

Jurisdictional delineation data was collected along 10 transects that were set up perpendicular along 2 baselines (Figure 10). Baseline 1 ran east-west through the portion

of the proposed OWEF site, which is north of I-8. All 10 transects intercept this baseline. Baseline 2 is located in the portion of the project area south of I-8 and was also oriented east-west. Transects 8, 9, and 10 also intercept this baseline. The entire length of each transect was surveyed on foot. Jurisdictional features were mapped with the aid of a GPS that is accurate to less than 3 feet. The rugged, boulder strewn hills in the southwestern part of the proposed OWEF site were not delineated, as they no longer contain project elements.

Additional channel width data was collected by Mr. Sward during vegetation mapping field work and fall 2010 special status plant surveys. This data helped fill in the gaps between the jurisdictional delineation transects.

The GPS data was plotted on an aerial photo-topographic base map, with a scale of one inch equal to 400 feet. The topography used for this base map was developed from aerial photography flown in the spring 2010 and mapped at 2-foot contours. The aerial photo base was specifically obtained for this project. It was flown in 2008 and has a resolution of one foot. The GPS data, aerial image, and topography were used to extrapolate the data between transects. Some of the GPS data points were essentially on top of other points on the 400 scale map. In these instances, the aggregate of their widths was used for a drainage width.

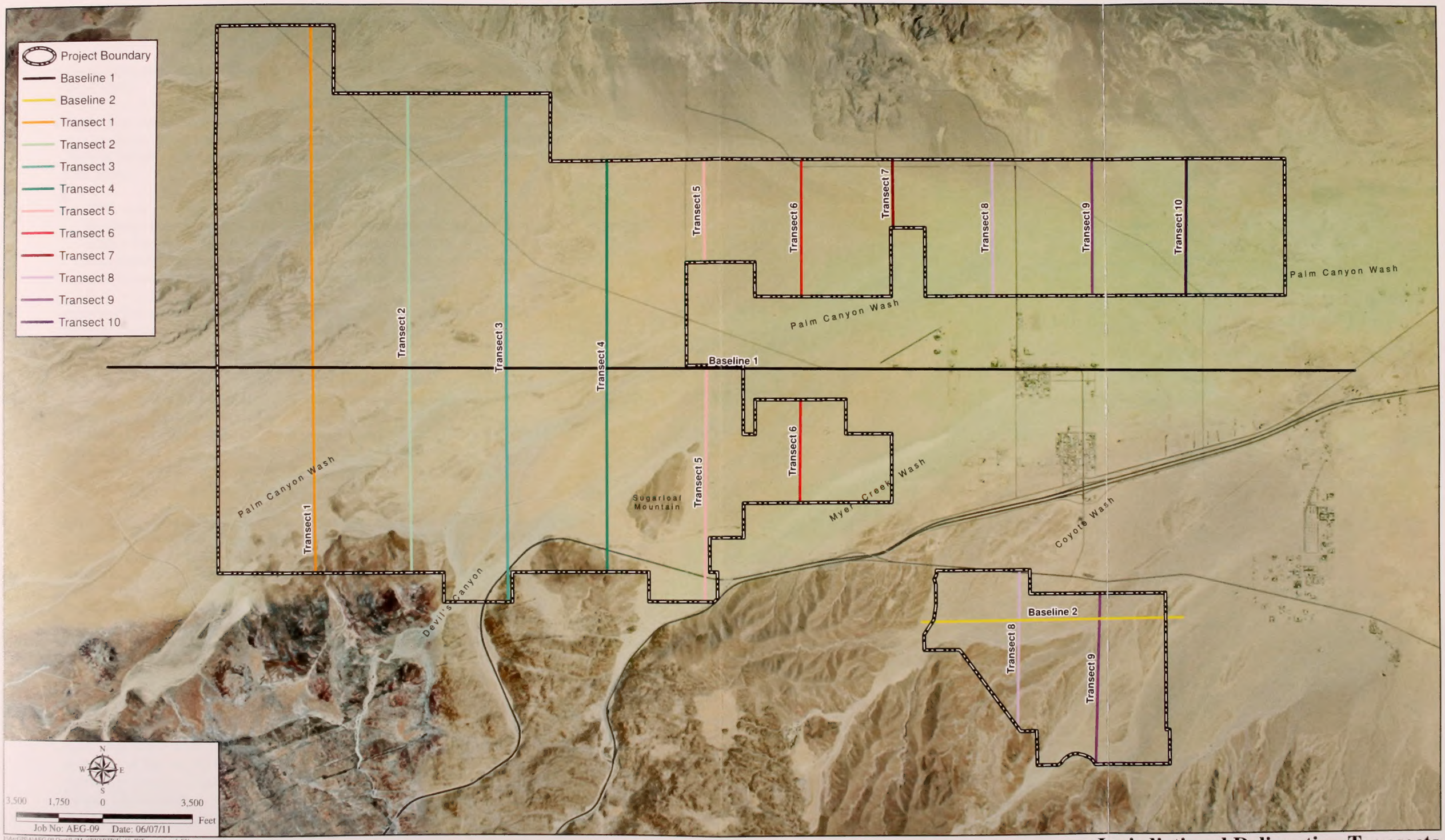
Corps jurisdictional drainages and unvegetated CDFG streambed streambeds widths are presented in this report as one of 6 size classes: 1 to 3 feet, 4 to 7 feet, 8 to 12 feet, 13 to 18 feet, 19 to 25 feet, and greater than 26 feet. The area calculations, however, are based on the actual drainage width. For example, a drainage that measures 5 feet in width is represented as 4 to 7 feet in width. The area for that drainage was calculated from its actual observed width and the corresponding length of the drainage at that width. The rationale behind grouping the width data into one of 6 size classes was to more easily present the data visually on the maps included in this report. The drainage classes are biased for the smaller width drainages because they are more common.

Integral to completing this delineation was the prior completion of a vegetation map for the proposed OWEF site. HELIX biologists, including Mr. Sward, were familiar with the proposed OWEF site from fieldwork associated with completing the vegetation mapping and also from intensive rare plant surveys and other species surveys within the proposed OWEF site.

The results of the jurisdictional delineation were provided in a jurisdictional delineation report (HELIX 2011b).

Corps Jurisdictional Areas

All areas with depressions, drainage channels, or wetland vegetation were evaluated for the presence of Corps Waters of the U.S. (WUS). Previous field surveys (such as vegetation mapping, rare plant surveys, etc.) revealed that no jurisdictional wetlands occur within the proposed OWEF site. This conclusion is based on the lack of any



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Jurisdictional Delineation Transects

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Figure 10

vegetation dominated by wetland species (Environmental Laboratory 1987, Corps 2008a, Reed 1988).

Areas were determined to be jurisdictional non-wetland Waters of the U.S. where there was evidence of an ordinary high water mark (OHWM). Corps regulations define OHWM for the purposes of the Clean Water Act at 33 CFR 328.3(e). This section of the CFR states:

> "The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, and other appropriate means that consider the characteristics of the surrounding areas."

Among other points, the Regulatory Guidance Letter (Corps 2005) lists the following physical characteristics to consider when making an OHWM determination:

Natural line impressed on the bank	Sediment sorting
Shelving	Leaf litter disturbed or washed away
Changes in the character of soil	Scour
Destruction of terrestrial vegetation	Deposition
Presence of litter and debris	Multiple observed flow events
Wracking	Bed and Banks
Vegetation matted down, bent, or absent	Water Staining
Change in plant community	

The Corps has also issued further instructions for identifying the OHWM in desert areas (Lichvar and McColley 2008), which has also been used for identifying the limits of Corps jurisdiction within the proposed OWEF site. This publication relies on stream geomorphology and vegetation response to the dominant stream discharge to aid in identifying the OHWM.

The results presented here are also consistent with recent court decisions (i.e., Rapanos v. United States, Carabell v. United States, and Solid Waste Agency of Northern Cook County v. Corps), as outlined and applied by the Corps (Corps 2007; Grumbles and Woodley 2007); and Corps and Environmental Protection Agency (EPA; 2007); and EPA and Corps (2007). These publications explain that the EPA and Corps will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are a relatively permanent water body (RPW), which has year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation is used to determine if the non-RPW is jurisdictional. As an alternative to the significant nexus evaluation process, a preliminary jurisdictional delineation may be submitted to the Corps. The preliminary jurisdictional delineation treats all waters and wetlands on a site as if they are jurisdictional Waters of the U.S. (Corps 2008b).

State Jurisdictional Areas

The State Water Resource Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne), as described in the California Water Code (SWRCB 2008). The California Water Code is the State's version of the Federal Clean Water Act (CWA). Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

Section 401 of the CWA stipulates SWRCB involvement for projects that require a federal license or permit (e.g., 404 Permit), and will result in the discharge to WUS. This must be obtained prior to issuance of a 404 Permit.

CDFG Jurisdictional Areas

CDFG jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFG jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses that have a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). This definition for CDFG jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., smoke tree woodland and cheesebush scrub). Within the proposed OWEF site, however, these are only considered CDFG jurisdictional if associated with a streambed or watercourse. There are apparent drainages in the proposed OWEF site that show no sign of any stream flow, and these are not regarded as CDFG jurisdictional. Vyverberg (2010) was also used as a reference to aid in identifying dryland streams.

CDFG regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. The Fish and Game Code Section 1602 requires any entity to notify CDFG before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams, as well as lakes in the state.

3.1.2.11 Nomenclature

Nomenclature used in this report comes from the MCV (Sawyer et al 2009) for vegetation; Baldwin, ed. (2002) and Rebman and Simpson (2006) for plants; Heath (2004), Garth and Tilden (1986), and Glassberg (2001) for butterflies; Collins and Taggart (2009) for reptiles and amphibians; American Ornithologists' Union (2010) for birds; and Baker et al. (2003) for mammals. Plant species status is taken from the CNPS (2011) and BLM (2004). Animal species status is from CDFG (2011) and BLM (2006).

3.2 FIELD SURVEY RESULTS

3.2.1 Vegetation

Sixteen vegetation communities, 3 natural land cover types (badland/mudlands, rock/large boulder outcrop, streambed), and 3 altered land cover types (developed, disturbed habitat, and railroad) occur within the proposed OWEF site. These vegetation communities/land covers are listed in Table 2 in alphabetical order and shown on Figures 11A through 11D. Eight of these vegetation communities are considered sensitive by CDFG (2010b), including big galleta grass shrub-steppe, brittle bush scrub, desert agave scrub, desert lavender scrub, mesquite thicket, smoke tree woodland, teddy bear cholla scrub, and white bursage scrub. Descriptions of the vegetation communities and land cover types are provided below.

Table 2
VEGETATION COMMUNITIES/LAND COVERS

Vegetation Community/Land Cover[1]	Rarity Ranking[2]	Acreage
Allscale Scrub	S4	128.1
Badlands and Mudhills[3]	--	162.0
Big Galleta Grass Shrub-steppe	S2	1.9
Brittle Bush Scrub	S4	92.9
Cheesebush Scrub	S4	1,095.6
Creosote Bush Scrub	S5	938.9
Creosote Bush-Brittle Bush Scrub	S4	2,280.1
Creosote Bush-White Bursage Scrub	S5	5,877.3
Desert Agave Scrub	S3	248.5
Desert Lavender Scrub	S3	3.9
Developed[3]	--	82.9
Disturbed Habitat[3]	--	7.6
Fourwing Saltbush Scrub	S4	6.5
Mesquite Thicket	S3.2	0.8

Table 2 (cont.) VEGETATION COMMUNITIES/LAND COVERS		
Vegetation Community/Land Cover[1]	**Rarity Ranking[2]**	**Acreage**
Ocotillo Tall Scrub[3]	--	23.5
Railroad[2]	--	12.5
Rock/Large Boulder Outcrop[3]	--	4.8
Smoke Tree Woodland	S3	380.9
Streambed[3]	--	15.3
Teddy Bear Cholla Scrub[4]	S3	663.0
White Bursage Scrub	S4	176.2
Wolf's Cholla Scrub[3]	--	232.3
	TOTAL	**12,435.5**

[1] Vegetation mapping was done to the alliance level. It should be noted that the vegetation communities listed in the Manual of California Vegetation and discussed in this section are referred to by the less formal name. For example, in the Manual of California Vegetation "allscale scrub" is formally referred to as "*Atriplex polycarpa* Shrubland Alliance."
[2]Sensitivity status from CDFG (2010b).
[3]Not listed in the Manual of California Vegetation (Sawyer et al 2009).
[4]Listed in the MCV as teddy bear cholla patches.

Allscale Scrub

Allscale (*Atriplex polycarpa*) is the dominant in the shrub canopy. Associated shrub species include white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), and creosote bush (*Larrea tridentata*). The herbaceous layer is variable based on soils and disturbance history. Common herbaceous species observed include desert Spanish-needle (*Palafoxia arida* var. *arida*), desert sunflower (*Geraea canescens*), few-flowered wreath plant (*Stephanomeria pauciflora*), Pierson's evening primrose (*Camissonia claviformis* var. *piersonii*), small-seed sandmat (*Chamaesyce polycarpa*), and Saharan mustard (*Brassica tournefortii*). Its landscape position is on terraces above the active floodplain. Allscale scrub is generally about 3 feet tall and occurs primarily in the northeastern part of the proposed OWEF site within Palm Canyon Wash.

Badlands and Mudhills

This mapping category includes hillsides and ridges that are unvegetated or support sparse herbaceous cover and an occasional shrub. The species present varies with the location, soils, and disturbance history. Common herbaceous species include desert pot herb (*Calandrinia ambigua*), narrow-leaf oligomeris (*Oligomeris linifolia*), desert sunflower, woolly plantain (*Plantago ovata*), bristly langloisia (*Langloisia setosissima*

- Permanent Impacts
- Temporary Impacts
- Permanent Meteorological Tower
- Badlands and Mudhills
- Brittle bush scrub
- Cheesebush scrub
- Creosote bush-brittle bush scrub
- Creosote bush scrub
- Creosote bush-white bursage scrub
- Desert agave scrub
- Developed
- Disturbed habitat
- Ocotillo tall scrub
- Smoke tree woodland
- Streambed
- Teddy bear cholla scrub
- White bursage scrub

S2

Imperial Highway

MATCH TO FIGURE 11B

MATCH TO FIGURE 11C

Palm Canyon Wash

N
W E
S

1,500 750 0 1,500 Feet

Job No: AEG-09 Date: 06/07/11

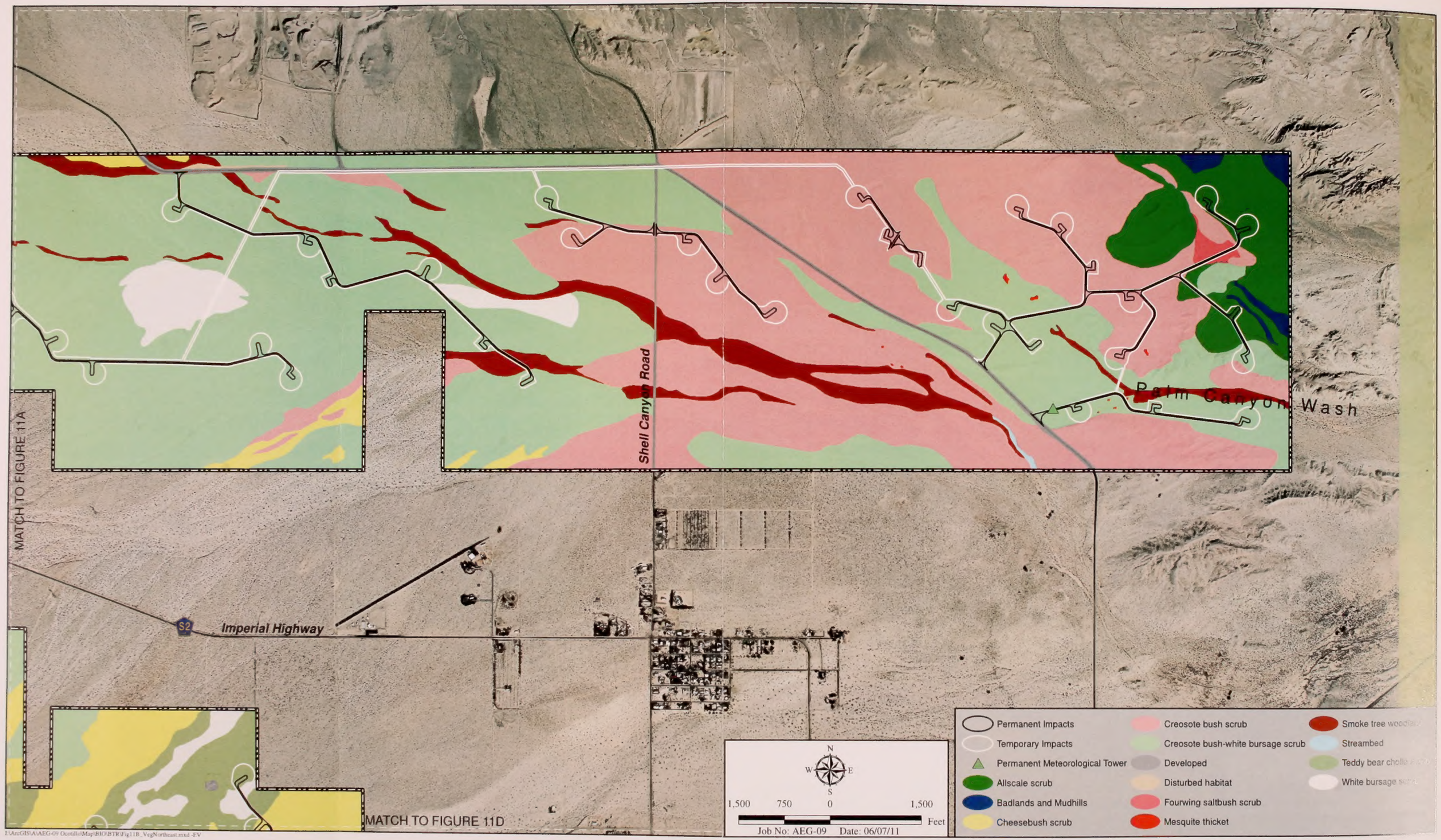
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Vegetation Communities/Impacts - Northwest

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HELIX Environmental Planning

Figure 11A



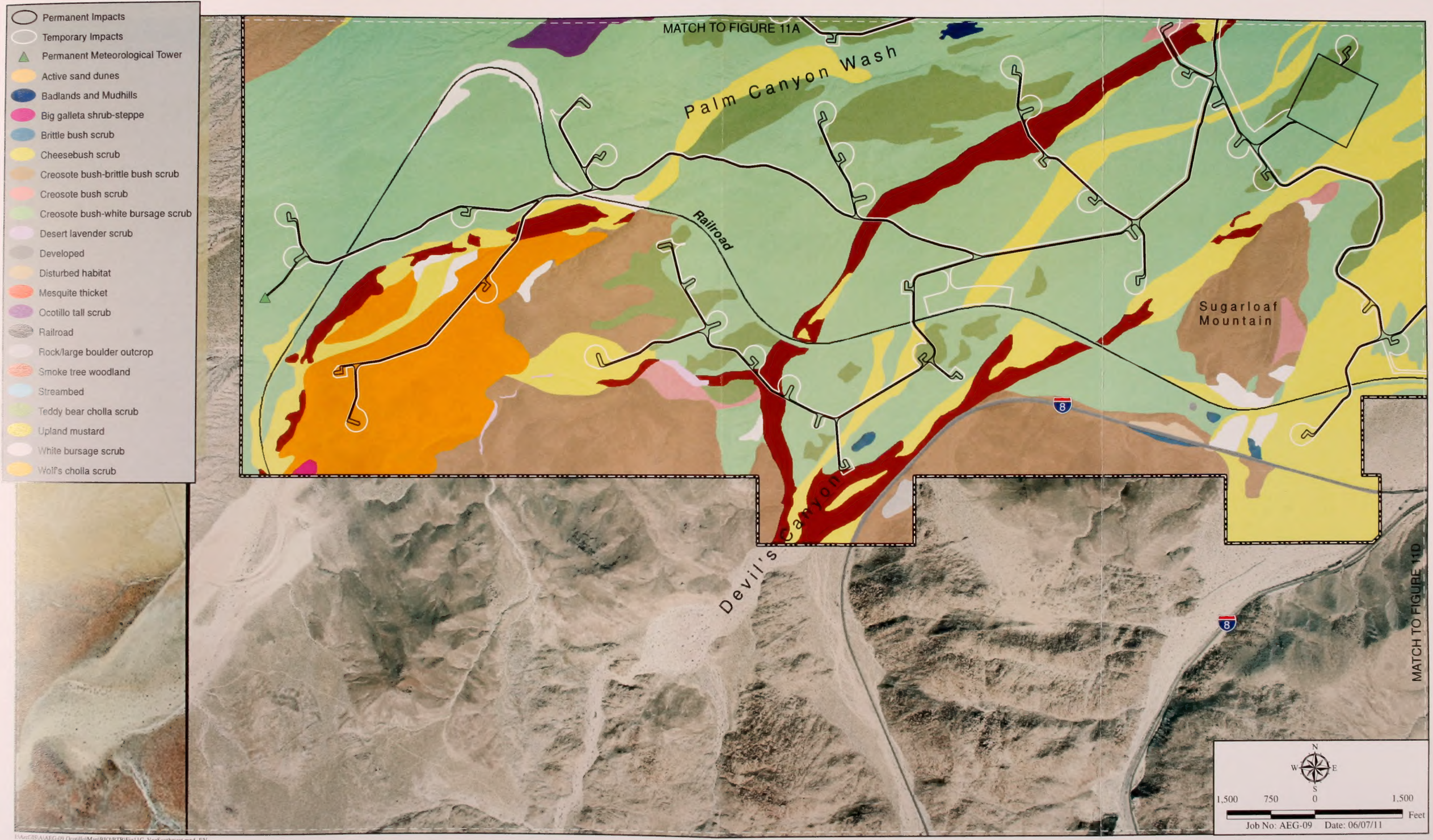
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Vegetation Communities/Impacts - Northeast

OCOTILLO EXPRESS WIND PROJECT

Figure 11B

HELIX Environmental Planning



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Vegetation Communities/Impacts - Southwest

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 11C

MATCH TO FIGURE 11B

MATCH TO FIGURE 11C

Myer Creek

Railroad

Coyote Wash

Imperial Highway

S2

98

8

Permanent Impacts
Temporary Impacts
Permanent Meteorological Tower
Badlands and Mudhills
Brittle bush scrub
Cheesebush scrub
Creosote bush-brittle bush scrub
Creosote bush scrub
Creosote bush-white bursage scrub
Developed
Disturbed habitat
Railroad
Smoke tree woodland
Teddy bear cholla scrub
White bursage scrub

N
W
E
S

1,500 750 0 1,500 Feet

Job No: AEG-09 Date: 06/07/11

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Vegetation Communities/Impacts - Southeast

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 11D

var. *setosissima*), desert lily (*Hesperocallis undulata*), and Saharan mustard. The common occasional shrubs observed include creosote bush, white bursage, brittle bush (*Encelia farinosa* var. *farinosa*), and ocotillo (*Fouquieria splendens* ssp. *splendens*). This landform occurs at scattered locations in the proposed OWEF site, the largest of which is in the western part of the proposed OWEF site.

Big Galleta Grass Shrub-steppe

Big galleta grass (*Hilaria* [*Pleuraphis*] *rigida*) is dominant or co-dominant in the herbaceous layer of this vegetation community. Within the proposed OWEF site, this vegetation community consists primarily of the big galleta grass and Saharan mustard. It occurs in the northwest part of the proposed OWEF site on the dune apron and stabilized sand dunes, and in a few locations as narrow bands in canyon floors. This vegetation community is considered sensitive (i.e., highly imperiled) by the CDFG (2010).

Brittle Bush Scrub

Brittle bush is dominant or co-dominant in the shrub canopy. Associated shrub species include white bursage, teddy bear cholla (*Cylindropuntia bigelovii*), California barrel cactus (*Ferocactus cylindraceus*), ocotillo, pima rhatany (*Krameria erecta*), and creosote bush. Common herbaceous species observed include Pierson's evening primrose, pebble pincushion (*Chaenactis carphoclinia* var. *carphoclinia*), narrow-leaf cryptantha (*Cryptantha angustifolia*), cleft-leaf phacelia (*Phacelia crenulata* var. *minutiflora*), white-hair cryptantha (*Cryptantha maritima*), desert dandelion (*Malacothrix glabrata*), and Saharan mustard. Vegetation in this alliance is typically 1.5 to 3 feet tall and is typically found on steep, rock strewn hillsides, alluvial fans, and bajadas. It occurs in the southwestern and far southern areas within the proposed OWEF site. This vegetation community is considered sensitive (i.e., highly imperiled) by the CDFG (2010).

Cheesebush Scrub

Cheesebush is dominant or co-dominant in the shrub canopy. Associated shrub species include rush sweetbush (*Bebbia juncea* var. *aspera*), chuparosa (*Justicia californica*), desert lavender (*Hyptis emoryi*), California ephedra (*Ephedra californica*), Thurber's sandpaper plant (*Petalonyx thurberi* ssp. *thurberi*), and creosote bush. Common herbaceous species observed include few-flowered wreath plant, desert dandelion, small-seed sandmat, desert Spanish-needle, frost mat (*Achyronychia cooperi*), California croton (*Croton californicus*), desert thornapple (*Datura discolor*), and kidney-leaf buckwheat (*Eriogonum reniforme*). Occasionally, emergent tree species are present, such as smoke tree (*Psorothamnus spinosus*) and desert willow (*Chilopsis linearis* ssp. *arcuata*). The canopy for this scrub is 3 to 6 feet tall and occurs extensively in arroyos, channels, and washes throughout the proposed OWEF site.

Creosote Bush Scrub

Creosote bush is dominant or co-dominant in the shrub canopy. Associated shrub species include white bursage, cheesebush, Palmer's coldenia (*Tiquilia palmeri*), and brittle bush. Occasional ocotillo plants are also present. Common herbaceous species observed include woolly plantain, bristly langloisia, broad-leaf gilia (*Alliciella adscensionis*) desert dandelion, brittle spineflower (*Chorizanthe brevicornu* var. *brevicornu*), and pebble pincushion. The shrub canopy for this scrub is 3 to 6 feet tall. It occurs on alluvial fans, bajadas, and drainages, and in scattered locations in the proposed OWEF site. The largest stands occur in the north eastern part of the proposed OWEF site.

In addition to typical creosote bush scrub, 2 other creosote bush scrub associations were present in the proposed OWEF site. All 3 associations have creosote bush as a dominant species, but 2 of the associations have an additional dominant species (i.e., allscale and fourwing saltbush scrub) and are further described below.

Creosote Bush-Allscale Scrub

Creosote bush and allscale are co-dominant in the shrub canopy. Associated shrub species include indigo bush (*Psorothamnus schottii*) and catclaw acacia (*Acacia greggii*). Smoke trees were also present in low density. Common herbaceous species observed include soft prairie clover (*Dalea mollissima*), California croton, desert calico (*Loeseliastrum matthewsii*), Yuma spurge (*Chamaesyce setiloba*), trailing windmills (*Allionia incarnata* var. *villosa*), plicate coldenia (*Tiquilia plicata*), desert chicory (*Rafinesquia neomexicana*), and red-stem filaree (*Erodium cicutarium*). The shrubs in this vegetation community are typically 3 to 6 feet tall. This association occurs in intermediate part of the floodplain, primarily in the northeastern part of the proposed OWEF site in Palm Canyon Wash.

Creosote Bush-Fourwing Saltbush Scrub

Creosote bush and fourwing saltbush (*Atriplex canescens* var. *canescens*) are co-dominant. Associated shrub species include cheesebush, white rhatany (*Krameria grayi*), and indigo bush. Emergent ocotillo is also present in low density. Common herbaceous species observed include desert sand verbena (*Abronia villosa* var. *villosa*), Spanish needles, Pierson's evening primrose, desert pincushion (*Chaenactis stevioides*), Yuma spurge, Arizona lupine (*Lupinus arizonicus*), desert sunflower, big galleta grass, and Saharan mustard. The shrub canopy for this scrub is 4.5 to 6 feet tall. This association occurs primarily in the northeastern part of the proposed OWEF site along Palm Canyon Wash.

Creosote Bush-Brittle Bush Scrub

Creosote bush and brittle bush are co-dominant in the shrub canopy. Associated shrub species include white bursage, California barrel cactus, pima rhatany, beavertail cactus (*Opuntia basilaris* var. *basilaris*), jojoba (*Simmondsia chinensis*), and California fagonia

(*Fagonia laevis*). Emergent ocotillo is also present in places in low density. Common herbaceous species observed include white-hair cryptantha, pebble pincushion, brittle spineflower, woolly plantain, white tack-stem (*Calycoseris wrightii*), rigid spineflower (*Chorizanthe rigida*), cleft-leaf phacelia, desert trumpet (*Eriogonum inflatum*), desert filaree (*Erodium texanum*), brown turbans (*Malperia tenuis*), few-flowered wreath plant, desert lily, and red brome (*Bromus madritensis* ssp. *rubens*). The shrub canopy for this scrub is 3 to 6 feet tall. It occurs on alluvial fans and bajadas. This is the second most extensive species in the proposed OWEF site.

Two associations were noted within this alliance. Both have creosote bush and brittle bush as dominant species. Besides the typical association, the second association also has ocotillo as a dominant-species.

Creosote Bush-Brittle Bush-Ocotillo Scrub

This vegetation type is similar to creosote bush-brittle bush scrub with the exception that the ocotillo is co-dominant with creosote bush and brittle bush.

Creosote Bush-White Bursage Scrub

Creosote bush and white bursage are co-dominant in the shrub canopy. Associated shrub species include rush sweetbush, one or more species of cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), brittle bush, white rhatany, pima rhatany, indigo bush, desert agave (*Agave deserti*), and white dalea (*Psorothamnus emoryi* var. *emoryi*). Emergent ocotillo is also present in many places in low density. Common herbaceous species observed include Spanish needles, desert pincushion, desert dandelion, woolly plantain, several species evening primrose (*Camissonia claviformis* var. *piersonii* and *C. californica*), cleft-leaf phacelia, desert trumpet, several species of cryptantha (*C. angustifolia*, *C. micrantha*, and *C. maritima*), recurved pectocarya (*Pectocarya recurvata*), California croton, soft prairie clover, brittle spineflower, rigid spineflower, big galleta grass, desert calico, red brome and Saharan mustard. It occurs on alluvial fans and bajadas. The shrub canopy for this scrub is 3 to 6 feet tall. This is the most extensive scrub in the proposed OWEF site.

Four associations were noted within this alliance, all having creosote bush and white bursage as dominant species. Three of the associations have an additional species (i.e., indigo bush or ocotillo) or growth form (succulents) that are also dominants and are further described below.

Creosote Bush-White Bursage-Indigo Bush Scrub

Indigo bush is co-dominant with creosote bush and white bursage. This association occurs along the upper terraces of Palm Canyon Wash, in the north-central part of the proposed OWEF site.

Creosote Bush-White Bursage Succulent Scrub

This vegetation type is similar to creosote bush-white bursage scrub with the exception that succulents, such as cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), California barrel cactus, and the stem succulent, ocotillo, are also relatively abundant. This association occurs primarily in the western and central parts of the proposed OWEF site.

Creosote Bush-White Bursage-Ocotillo Scrub

This vegetation type is similar to creosote bush-white bursage scrub with the exception that the ocotillo is co-dominant with creosote bush and white bursage. This association occurs in rocky uplands.

Desert Agave Scrub

Desert agave is co-dominant in the shrub layer. Associated shrub species include creosote bush, white bursage, rush sweetbush, California barrel cactus, cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), brittle bush, Engelmann's hedgehog cactus (*Echinocereus engelmannii*), pima rhatany, and beavertail cactus. Emergent ocotillo is also present in low-to-moderate density. Common herbaceous species observed include desert pincushion, Spanish needles, several species of cryptantha (*C. angustifolia*, *C. micrantha*, and *C. pterocarya* var. *cycloptera*) and evening primrose (*Camissonia claviformis* var. *piersonii*, *C. californica*, and *C. boothi* ssp. *condensata*), desert lily, big galleta grass, Mojave desert star (*Monoptilon bellioides*), red brome, and Saharan mustard. The shrub canopy for this scrub is less than 3 to 6 feet tall. This association occurs on alluvial fans and bajadas in the northwestern part of the proposed OWEF site. This vegetation community is considered sensitive (i.e., highly imperiled) by the CDFG (2010).

Desert Lavender Scrub

Desert lavender is dominant or co-dominant in the shrub canopy. Associated shrub species include cheesebush, rush sweetbush, chuparosa, indigo bush, and creosote bush. Emergent catclaw acacia and desert willow are also present is very low densities. The shrub canopy for this scrub is 3 to 6 feet tall. This association occurs primarily in narrow, sandy washes. This vegetation community is considered sensitive (i.e., highly imperiled) by the CDFG (2010).

Developed

Portions of the study have been previously developed. This mapping category consists primarily of roads including I-8, SR 98, CH S2, Shell Canyon Road, and 2 unnamed paved roads that connect a quarry north of the proposed OWEF site with either the I-8 frontage road at a point east of Ocotillo or CH S2. It includes the paved road surface and maintained road shoulder.

Disturbed Habitat

Disturbed habitat consists of areas that have been previously been cleared of vegetation and that have remained unvegetated, sometimes due to ongoing disturbances (e.g., OHV).

Fourwing Saltbush Scrub

Fourwing saltbush is dominant or co-dominant in the shrub canopy. Associated shrub species include white bursage, cheesebush, allscale, and creosote bush. Emergent honey mesquite (*Prosopis glandulosa* var. *torreyana*) is also present in several locations. The shrub canopy for this scrub is 3 to 6 feet tall. This vegetation type is present in the northeast part of the proposed OWEF site on alkaline, sandy soils.

Mesquite Thicket

Honey mesquite is dominant in the tree canopy (less than 21 feet) of this vegetation community. Shrubs including allscale, rush sweetbush, cheesebush, white bursage, fourwing saltbush, and sandpaper plant also may be present. Within the proposed OWEF site, this vegetation type occurs as small, dense patches of honey mesquite, primarily in the eastern part of Palm Canyon Wash of the proposed OWEF site. This vegetation community is considered sensitive (i.e., highly imperiled) by the CDFG (2010).

Ocotillo Tall Scrub

Ocotillo tall scrub is not listed as an association in the MCV, but is considered a distinct vegetation type on site due to ocotillo being the dominant or co-dominant species present. Ocotillo occurs throughout the proposed OWEF site and is present in many vegetation communities. What differentiates this vegetation type is that ocotillo is clearly the most abundant species. Many shrub species may also be present including creosote bush, white bursage, brittle bush, white rhatany, California barrel cactus, Wolf's and teddy bear cholla, and indigo bush. Ocotillo may be as tall as 10 to 30 feet, but is typically 15 to 21 feet. This association occurs on alluvial fans and bajadas in the central-western part of the proposed OWEF site. This association has also been mapped by others as a vegetation type in ABDSP.

Railroad

Railroad tracks, which are currently not being used, snake through the southwestern part of the proposed OWEF site, and also traverse a section of the proposed OWEF site south of SR 98. The disturbance associated with railroad construction occurred many years ago, which has given native and naturalized species time to recolonize this area. The construction of the railroad had other significant effects on the area, particularly in places where fill for the railroad directs what were once broad dynamic flood flows to culverts or trestles.

Rock/Large Boulder Outcrop

Rock/large boulder outcrop was used to indicate areas where there is limited vegetative cover due to very large boulders. In these areas, the boulders are at least several feet across. Ocotillo, creosote bush, brittle bush, and Wolf's cholla (*Cylindropuntia wolfii*) occur in this area in very low densities. This mapping category occurs in the southern part of the proposed OWEF site near I-8.

Smoke Tree Woodland

Smoke tree is the dominant tree or tall shrub canopy species, with desert willow also occurring in the tree canopy. Understory shrubs include catclaw acacia, cheesebush, rush sweetbush, chuparosa, desert lavender, creosote bush, sandpaper plant, and indigo bush. Common herbaceous species observed include few-flowered wreath plant, small seed sandmat, kidney-leaf buckwheat, and desert Spanish needle. This association occurs in arroyos, intermittently flooded channels, and washes with sandy, well drained soils. This association also occurs in the larger drainages within the proposed OWEF site. In some places, such as the Palm Canyon Wash in the western part of the proposed OWEF site, this woodland occurs as a relatively dense and narrow stands. In the broader sections of Palm Canyon Wash in the northeastern part of the proposed OWEF site, this association is less dense and other species provide relative more cover than elsewhere in the proposed OWEF site. There is also a phase of this vegetation type that is relatively broad and dense, but is much more shrub like in stature than elsewhere. This phase occurs along Meyer Creek east of the west bound section of I-8. This vegetation community is considered sensitive (i.e., highly imperiled) by the CDFG (2010).

Streambed

Streambed was used to map sections of washes that do not support any vegetation. This is likely due to periodic scouring and deep coarse soils, but may be accentuated by OHV disturbance. This habitat is considered sensitive by the Corps and CDFG.

Teddy Bear Cholla Scrub

Teddy bear cholla is dominant in the shrub canopy with white bursage, rush sweetbush, silver and Wolf's cholla, ocotillo, California barrel cactus, and white rhatany. Common herbaceous species observed include desert dandelion, desert pincushion, several species of cryptantha, woolly plantain, desert Spanish needle, desert trumpet, Saharan mustard and Mediterranean schismus (*Schismus barbatus*). Soils are coarse sands to loams. The shrub canopy is less than 6 feet tall and occurs on alluvial fans and gentle to moderate slopes of rocky highlands. This vegetation community occurs primarily in the central part of the proposed OWEF site. The MCV lists this community as teddy bear cholla patches; however, it has been mapped by others as teddy bear cholla scrub in ABDSP due to teddy bear cholla being the dominant shrub in the community.

White Bursage Scrub

White bursage is dominant or co-dominant in the shrub canopy. Associated shrub species include Palmer's coldenia, teddy bear cholla, Engelmann's hedgehog cactus, brittle bush, and beavertail cactus. Annual species observed include Pierson's evening primrose, desert Spanish needle, and Saharan mustard. Overall this vegetation community is low growing (less than 3 feet), but emergent creosote bush and ocotillo may be present in low densities. This vegetation community typically occurs on older washes and river terraces, alluvial fans and bajadas, rocky hills and partially stabilized and stabilized sand fields. White bursage scrub occurs in scattered location within the proposed OWEF site.

Wolf's Cholla Scrub

Wolf's cholla is dominant in the shrub canopy with white bursage, creosote bush, teddy bear cholla, brittle bush, rush sweetbush, ocotillo, California barrel cactus, jojoba, and fish-hook cactus (*Mammallaria dioica*). Common herbaceous species include Fremont's desert pincushion (*Chaenactis fremontii*), desert dandelion, desert trumpet, several species of cryptantha, and woolly plantain. The shrubs canopy is less than 6 feet tall. It occurs on alluvial fans and gentle to moderate slopes of rocky highlands. It occurs in the southwestern part of the proposed OWEF site.

3.2.2 Special Status Plant Species Observed

A total of 222 plant species were observed during the vegetation mapping, rare plant surveys, and opportunistically during other surveys within the proposed OWEF site (Appendix B).

No federally or state listed plant species were observed within the proposed OWEF site. Twelve special status plant species, however, were observed: little San Bernardino Mountains linanthus (*Linanthus maculatus*), Haydon's lotus (*Lotus haydonii*), Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*), Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*), brown turbans, hairy stick-leaf (*Mentzelia hirsutissima*), jack-ass clover (*Wislizenia refracta* ssp. *refracta*), Wolf's cholla, deboltia (*Cynanchum utahense*), long-lobed four o'clock (*Mirabilis tenuiloba*), Thurber's pilostyles (*Pilostyles thurberi*), and desert unicorn plant (*Proboscidea althaeifolia*). These species are further discussed below and their locations are depicted on Figures 12A through 12H. In addition, Parish's larkspur (*Delphinium parishii* ssp. *subglobosum*) was observed within the special status plant species survey area that was part of an earlier version of the site plan (Figure 12D). However, the plant was documented outside of the current OWEF site boundary and will not be discussed further.

CRPR1 Species

Little San Bernardino Mountains linanthus (*Linanthus maculatus*)
Status: --/--; CRPR 1B.2, BLM Sensitive
Distribution: Riverside, San Bernardino, and San Diego counties. It is known primarily from the southwestern edge of the Mojave Desert and northwestern edge of the Colorado Desert.
Habitat and Biology: A small annual herb that grows in very loose soft sand on low benches along washes in Mojave and Sonoran desert scrub from 600 to 6,900 feet AMSL. Blooming period is March to May (CNPS 2011).
Status in the Survey Area: Approximately 100 individuals were observed in cheesebush scrub in the western portion of the survey area (Figure 12C), on the side slopes of the railroad tracks. Cheesebush was present in the vicinity but not intermixed with the linanthus. Although the numbers of individuals observed is relatively small, the population is healthy and does not appear to be compromised by OHV activity or other disturbance.

Haydon's lotus (*Lotus haydonii*)
Status: --/--; CRPR 1B.3, BLM Sensitive
Distribution: Eastern San Diego and Imperial counties; Baja California, Mexico
Habitat and Biology: A diminutive perennial herb that grows on dry, rocky slopes in Sonoran desert scrub between 1,500 and 3,600 feet AMSL. Blooms January to June (CNPS 2011).
Status in the Survey Area: Approximately 19 individuals of Haydon's lotus (also known as pygmy lotus) were observed primarily in rocky habitat in the southwestern portion of the proposed OWEF site (Figures 12C and 12D). The species was found in a variety of desert scrub habitats with desert lavender, brittle bush, Wolf's cholla, cheesebush, and jojoba as well as other species. This species occurs in a scattered distribution in the southwest portion of the proposed OWEF site and the overall occurrence quality and site viability ranges from good to excellent. Most occurrences are not under threat by OHV activity due to the rocky habitat, however, a handful of records located on the periphery of the rocky slopes could be subject to OHV disturbance. Some occurrences are within areas where Saharan mustard is present.

Mountain springs bush lupine (*Lupinus excubitus* var. *medius*)
Status: --/--; CRPR 1B.3; BLM Sensitive
Distribution: Eastern San Diego (near I-8) and Imperial counties; Baja California, Mexico
Habitat and Biology: A perennial subshrub that grows in sandy desert washes in pinyon and juniper woodland and Sonoran desert scrub between 1,300 and 4,100 feet AMSL. Blooms March to May (CNPS 2011).
Status in the Survey Area: A single individual was observed along the edge of the central portion of the proposed OWEF site.

Project Boundary
Special Status Plant Survey Area
Cu Deboltia *(Cynanchum utahense)*
Pt Thurber's Pilostyles *(Pilostyles thurberi)*
Cw Wolf's Cholla *(Cylindropuntia wolfii)*
Permanent Impacts
Temporary Impacts

N
W E
S

1,000 500 0 1,000
Feet

Job No: AEG-09 Date: 06/07/11

KEY MAP

Figure A
Figure B
Figure C
Figure D
Figure E
Figure F
Figure G
Figure H

Cw 4
Cw 4
Cw 4
Cw 6
Cw 15
Cw 10576
Cu 2
Cu 1
Cw 1
Cw 28
Cu 23
Cu 25
Cu 24
Cw 81
Cw 34
Cw 10
Cw 3
Cw 1
Cw 2
Cw 8
Cw 35
Cw 7
Cw 4
Match to Figure 12B
Cu 5
Pt 1
Cw 79
Cw 247
Cw 4
Match to Figure 12E

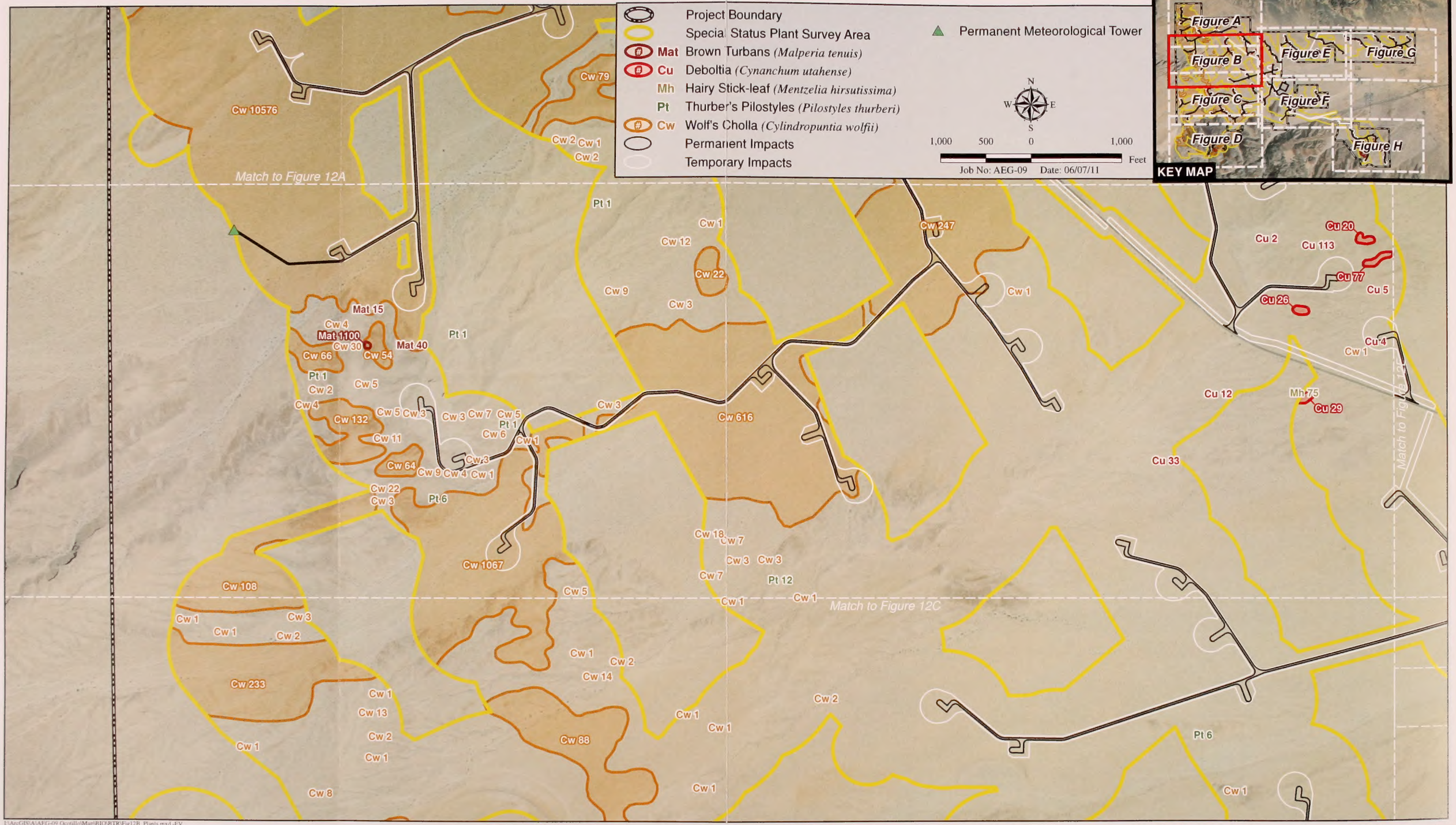
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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12A



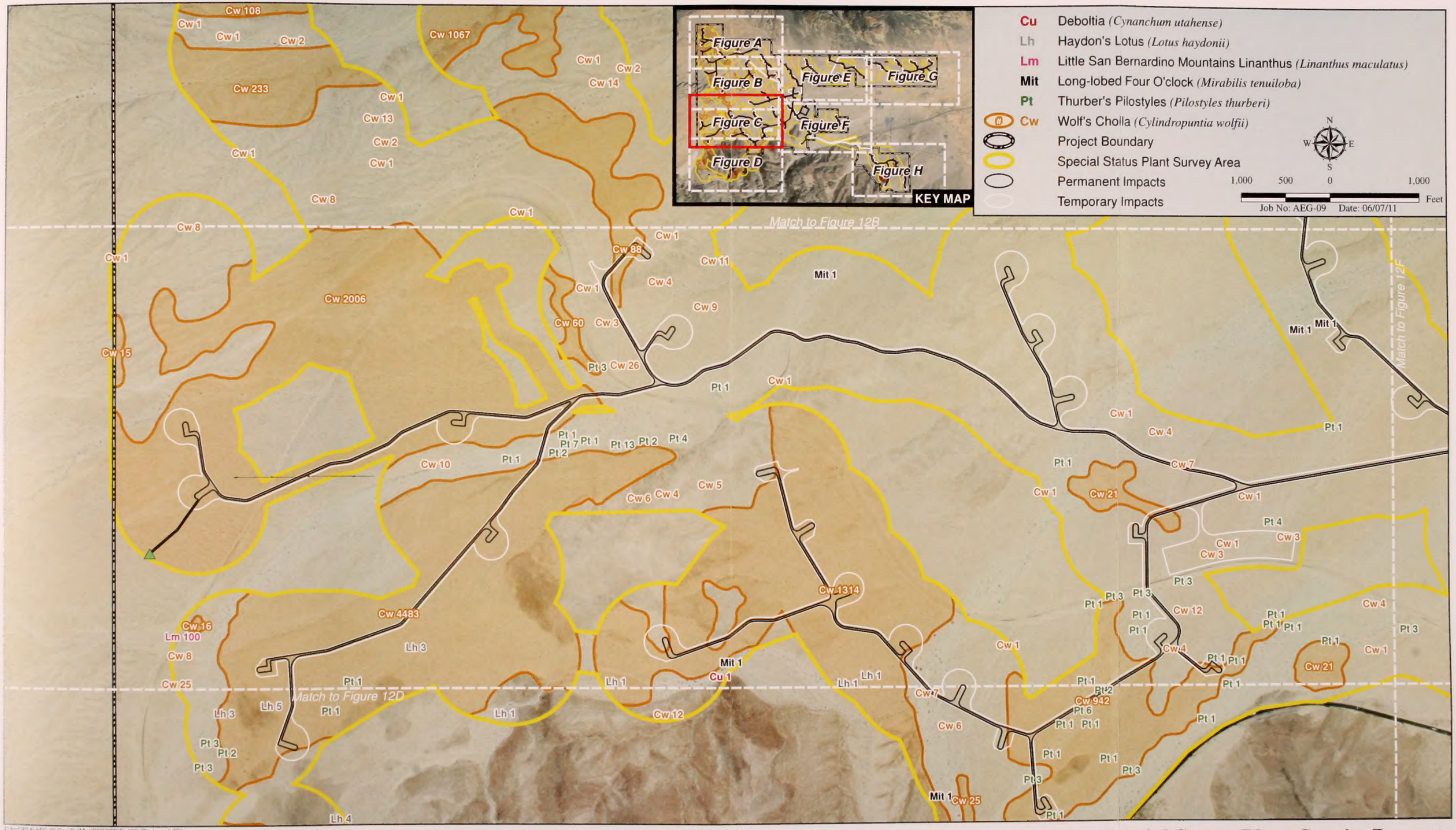
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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12B



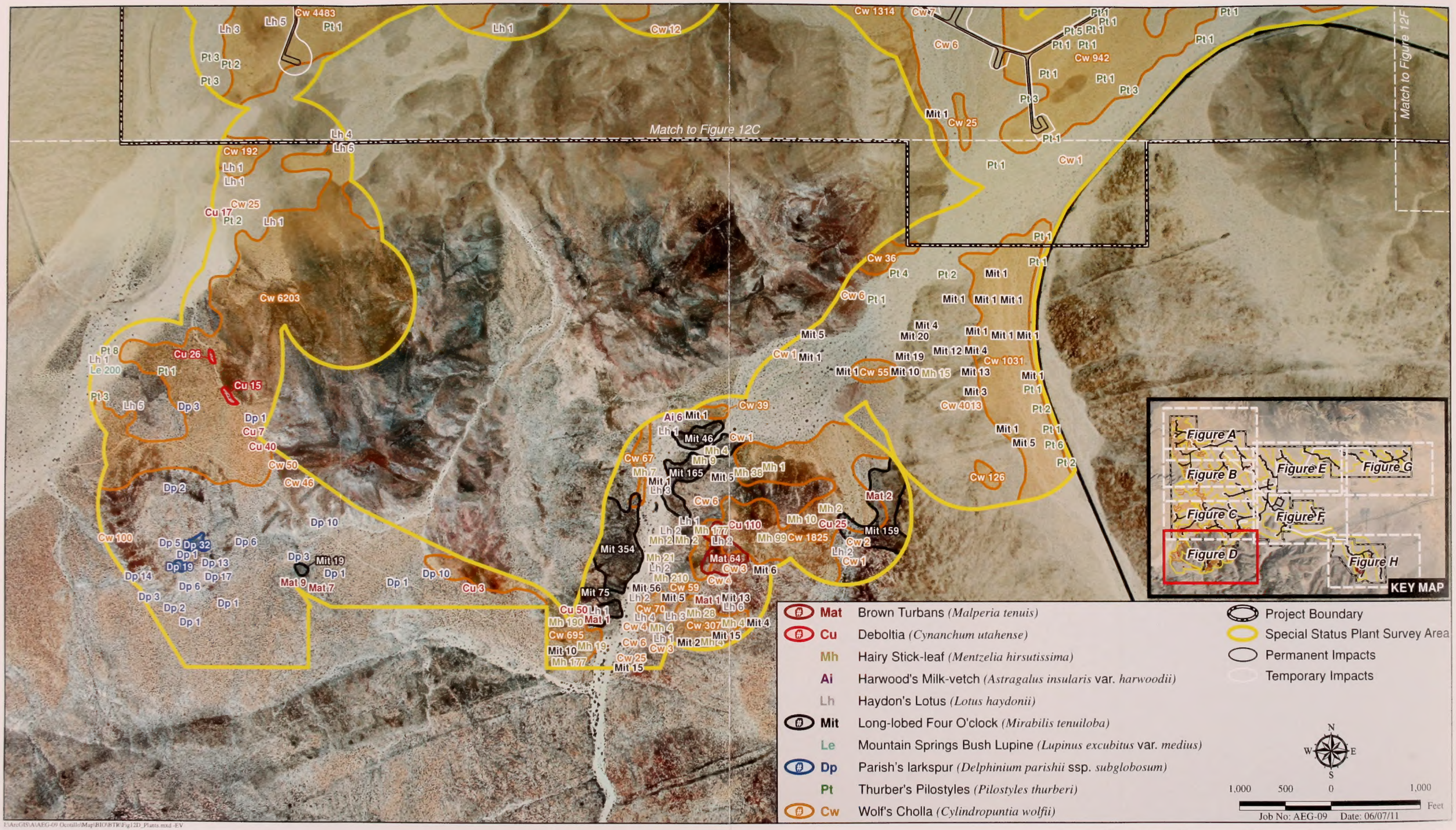
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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

Figure 12C

HELIX Environmental Planning



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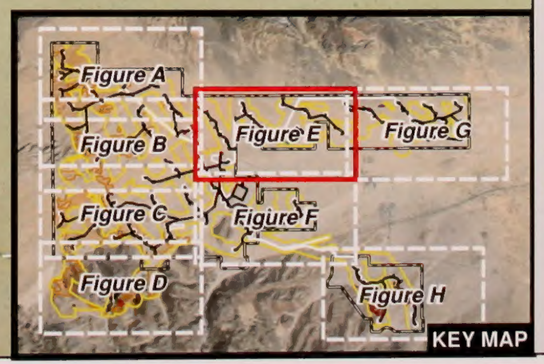
Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12D

Pt 2
Pt 1
Mit 1 Mit 1
Pt 2
Pt 1
Pt 1
Pt 2 Pt 2
Pt 1
Pt 6
Pt 2
Pt 19
Pt 1
Pt 1
Pt 1
Pt 17
Pt 1 Pt 1
Pt 2
Pt 1
Pt 1
Pt 9
Pt 2
Pt 1
Pt 1
Pt 5
Pt 26
Pt 2
Pt 8
Pt 5
Pt 1
Pt 1
Pt 1
Pt 10
Pt 6
Pt 1
Cw 1
Match to Figure 12B
Match to Figure 12G
Match to Figure 12F



Cu Deboltia *(Cynanchum utahense)*
Mit Long-lobed Four O'clock *(Mirabilis tenuiloba)*
Pt Thurber's Pilostyles *(Pilostyles thurberi)*
Cw Wolf's Cholla *(Cylindropuntia wolfii)*
Project Boundary
Special Status Plant Survey Area
Permanent Impacts
Temporary Impacts

W E S

1,000 500 0 1,000 Feet

Job No: AEG-09 Date: 06/07/11

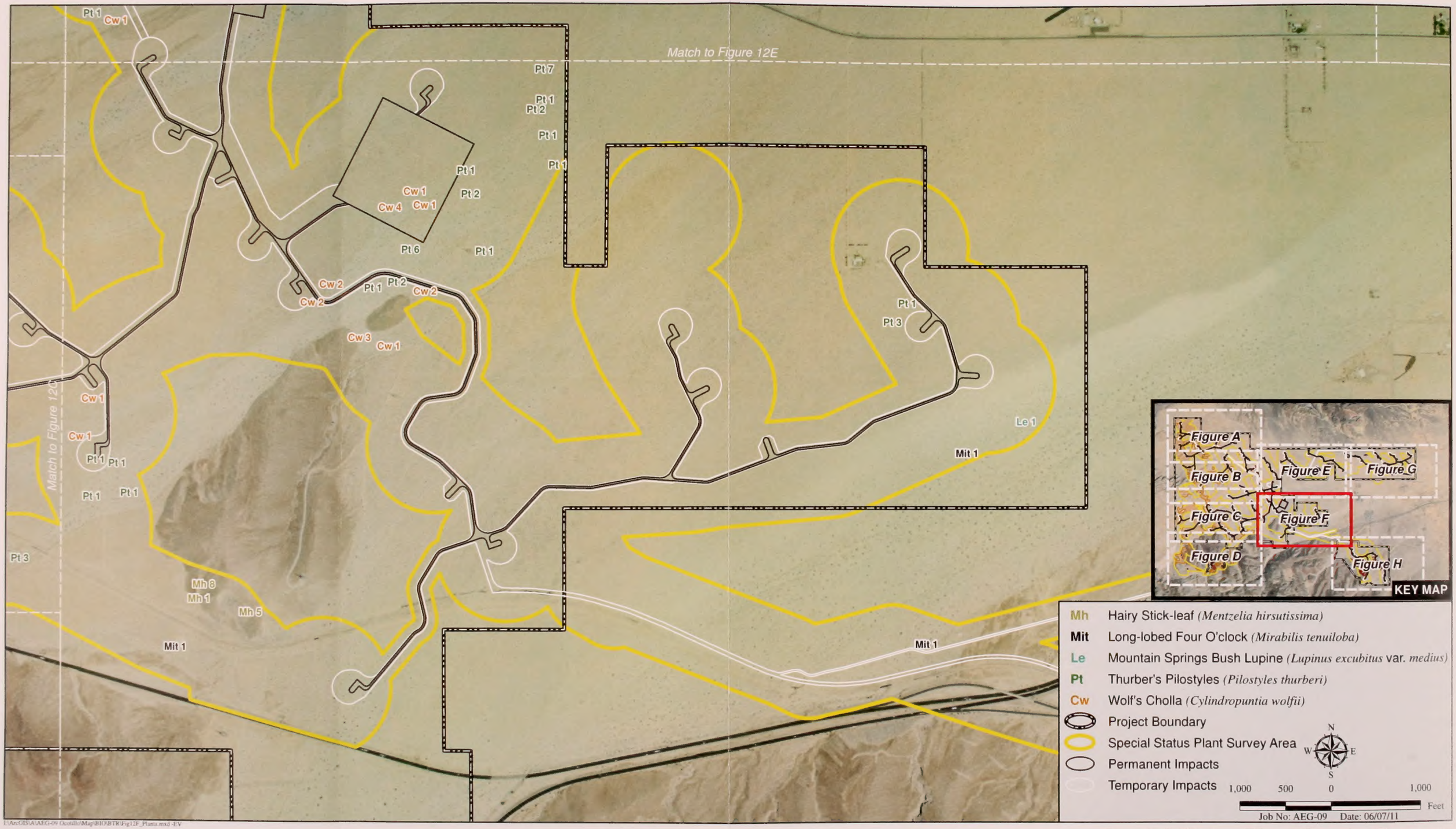
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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12E



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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12F

Mat 1
Mat 5
Mat 3
Mat 3
Ai 1
Ai 14
Ai 1
Ai 1
Mat 3
Ai 1
Mat 1
Mat 8
Pa 1
Pa 1
Pa 1
Ai 3
Ai 1
Ai 1
Ai 3
Ai 2
Pa 1
Pa 1
Pa 1 Pa 1
Wr 25
Ai 1
Ai 2
Match to Figure 12E

Figure A
Figure B
Figure C
Figure D
Figure E
Figure F
Figure G
Figure H
KEY MAP

Mat Brown Turbans *(Malperia tenuis)*
Pa Desert Unicorn Plant *(Proboscidea althaeifolia)*
Ai Harwood's Milk-vetch *(Astragalus insularis* var. *harwoodii)*
Wr Jack-ass Clover *(Wislizenia refracta* ssp. *refracta)*
Project Boundary
Special Status Plant Survey Area
Permanent Impacts
Temporary Impacts
Permanent Meteorological Tower

N
W E
S

1,000 500 0 1,000
Feet

Job No: AEG-09 Date: 06/07/11

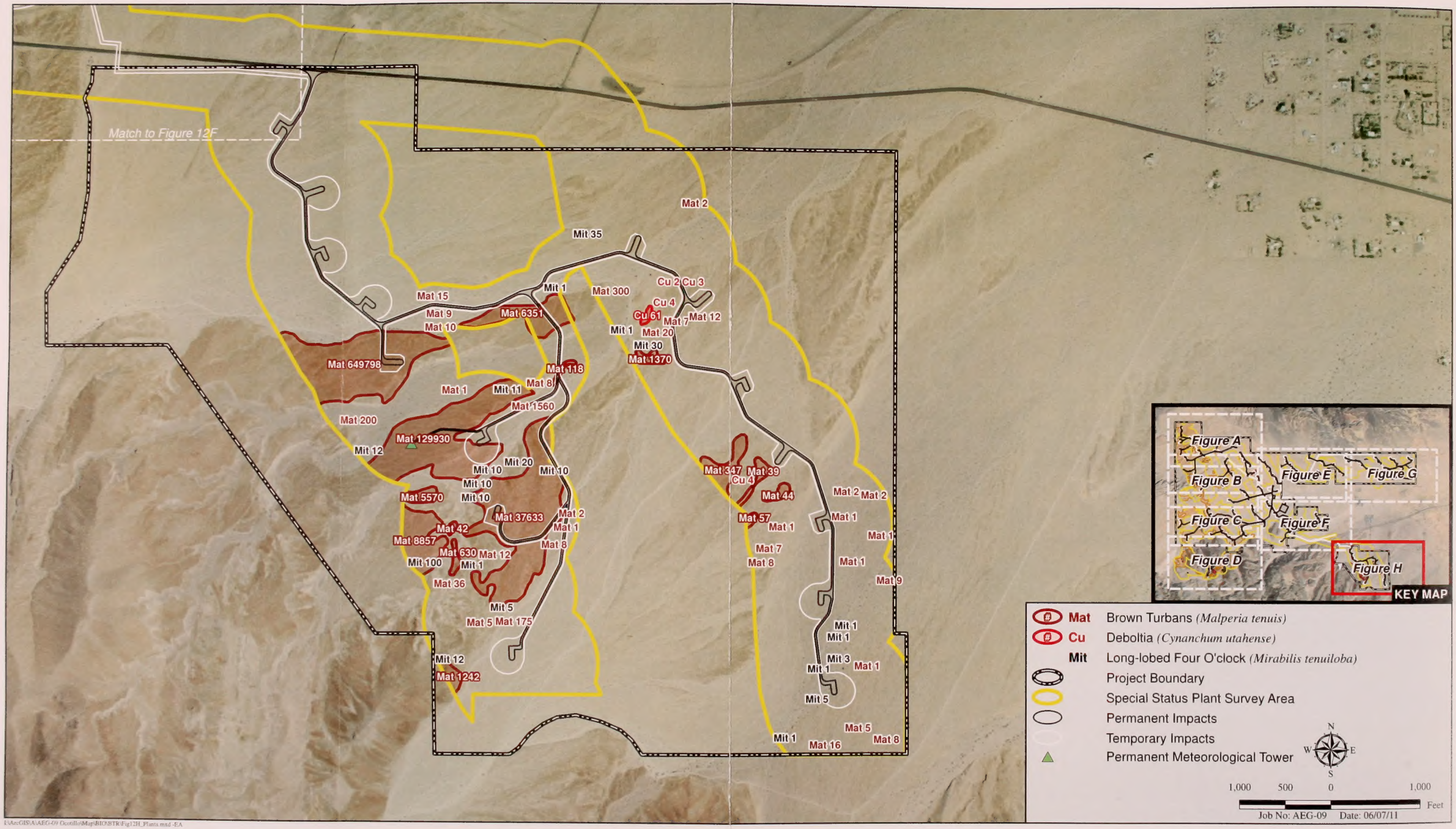
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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12G



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Special Status Plant Species/Impacts

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 12H

CNPS List 2 Species

Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)
Status: --/--; CRPR 2.2
Distribution: Central-eastern San Diego, eastern Riverside, and Imperial counties, Arizona; Sonora, Mexico
Habitat and Biology: Sonoran desert scrub in gravelly, sandy washes or dunes below 1,000 feet AMSL is the preferred habitat of this annual herb. Blooms January to May (CNPS 2011).
Status in the Survey Area: Approximately 32 individuals were observed in creosote bush scrub, primarily in the northeast portion of the survey area (Figure 12G). Other species observed in the vicinity include creosote bush, cheesebush, Thurber's sandpaper plant, desert sand verbena, allscale, Palmer's coldenia, and Saharan mustard. The population observed within the proposed OWEF site is small and the overall health is fair. A paved road is located near the occurrences of this species, and OHV activity and substantial cover by Saharan mustard also have been documented.

Brown turbans (*Malperia tenuis*)
Status: --/--; CRPR 2.3
Distribution: Eastern San Diego and Imperial counties; Baja California, Mexico
Habitat and Biology: An annual herb that occurs in Sonoran desert scrub at elevations less than 1,500 feet AMSL, growing on arid slopes with shallow soils as well as rocky surface rubble with few large boulders and little competition from shrubs. Blooms March through April (CNPS 2011).
Status in the Survey Area: Approximately 846,173 individuals observed in various desert scrub habitats in the eastern and western portions of the survey area (Figures 12B, 12D, 12G, and 12H). The vast majority of individuals occur in the southeastern portion of the plant survey area, often in areas with abundant surface gravel or cobbles. Other species observed in the vicinity include brittle bush, creosote bush, ocotillo, Mohave desert star, narrow-leaf oligomeris, pebble pincushion, and woolly plantain. The survey area supports a robust population of this species, particularly in the southeast, and the overall health of the population within the plant survey area is excellent. Small numbers of this species are subject to disturbance by OHVs and competition with Saharan mustard in the northeast portion of the proposed OWEF site, in the same vicinity as the Harwood's milk-vetch population.

Hairy stick-leaf (*Mentzelia hirsutissima*)
Status: --/--; CRPR 2.3
Distribution: Eastern San Diego and Imperial counties; Baja California, Mexico
Habitat and Biology: An annual herb found below 2,000 feet AMSL in low Sonoran desert scrub. Grows on rocky hillsides and desert mesas. Blooms March to May (CNPS 2011).
Status in the Survey Area: Approximately 89 individuals observed in creosote and brittle bush scrubs in the central portion of the survey area (Figure 12F). Associated species include creosote bush, brittle bush, cheesebush, rush sweetbush, indigo bush, California barrel cactus, and long-lobed four o'clock. Overall health of the population

within the proposed OWEF site is good, with only minor threats by OHV activity in some areas, as well as competition with Saharan mustard.

Jack-ass clover (*Wislizenia refracta* ssp. *refracta*)
Status: --/--; CRPR 2.2
Distribution: Southeastern California to west Texas
Habitat and Biology: An annual herb occurring in desert scrub, playas, and desert dunes, particularly in sandy washes, alkaline flats, and along roadsides. Elevation range is between 1,800 and 2,400 feet AMSL. Blooms April to November (CNPS 2011).
Status in the Survey Area: Approximately 25 individuals observed in the northeastern portion of the survey area (Figure 12G). Associated species include narrow-leaf oligomeris, desert sunflower, and desert pot herb. Population was found at the base of a north-facing slope on sparsely vegetated, sandy soils. Although the current condition of the site is excellent, the population is small and its viability is threatened by OHV activity.

CNPS List 4 Species

Wolf's cholla (*Cylindropuntia wolfii*)
Status: --/--; CRPR 4.3
Distribution: Eastern San Diego and Imperial counties; Baja California, Mexico
Habitat and Biology: This large stem succulent grows in Sonoran desert scrub, usually on alluvial fans or rocky slopes in open terrain, at elevations between 300 and 3,600 feet AMSL. Blooms March to May (CNPS 2011).
Status in the Survey Area: Approximately 24,735 individuals observed in numerous desert scrub habitats throughout the entire western half of the plant survey area and north-central portion of the plant survey area (Figures 12A, 12B, 12C, 12D and 12F). Associated species include creosote bush, brittle bush, ocotillo, teddy bear cholla, pencil cholla (*Cylindropuntia ramosissima*), silver cholla (*C. echinocarpa*), jojoba, desert lavender, desert yucca (*Agave deserti*), and indigo bush. The population is in good to excellent condition and individuals are widespread and abundant. Portions of the population are subject to disturbance by OHVs and competition by Saharan mustard.

Deboltia (*Cynanchum utahense*)
Status: --/--; CRPR 4.2
Distribution: Southeastern California; Nevada; Utah; Arizona
Habitat and Biology: Dry, sandy, or gravelly areas in Sonoran desert scrub and Mojavean desert scrub are general habitats utilized by this vine-like perennial herb. Elevation range is 450 to 4,300 feet AMSL. Blooms April to June (CNPS 2011).
Status in the Survey Area: Approximately 557 individuals observed in sandy washes occurring within various desert scrub habitats, primarily in the western portion of the plant survey area (12A, 12B, 12C, and 12D), in addition to the southeastern corner (Figure 12H). This twining species was primarily observed growing on big galleta grass, few-flowered wreath plant, white rhatany, cheesebush, and California fagonia. Populations within the plant survey area generally occur in concentrated locations where suitable sandy or gravelly wash habitat is present, and are in good to excellent condition.

Long-lobed four o'clock (*Mirabilis tenuiloba*)
Status: --/--; CRPR 4.3
Distribution: Imperial, Riverside, and San Diego counties; Arizona; Baja California, Mexico
Habitat and Biology: A perennial herb found in Sonoran desert scrub on sandy, gravelly, or rocky slopes. Known sites are xeric but relatively well-protected locales near boulders. Elevation range is 900 to 3,300 feet AMSL. Blooms March to May (CNPS 2011).
Status in the Survey Area: Approximately 308 individuals observed primarily in the southeastern corner of the plant survey area (Figures 12D and 12H), along with other scattered occurrences in the central and western portions of the survey area (Figures 12C, 12E, and 12F). Associated species include cheesebush, desert lavender, brittle bush, rush sweetbush, smoketree, catclaw acacia, and chuparosa. Overall the population is in good condition, although portions of the population are threatened by OHV activity and competition with Saharan mustard.

Thurber's pilostyles (*Pilostyles thurberi*)
Status: --/--; CRPR 4.3
Distribution: Imperial, Riverside, and San Diego counties; Arizona; Nevada; Baja California and Sonora, Mexico
Habitat and Biology: A perennial parasitic herb found in Sonoran desert scrub flatlands less than 1,000 feet AMSL. Typical host plant is white dalea (Baldwin et al 2002). Blooms in January (CNPS 2011).
Status in the Survey Area: Observed on 318 host plants (white dalea) in a variety of scrub habitats in the central and western portions of the plant survey area (Figures 12A, 12B, 12C, 12D, 12E, and 12F), with most occurrences concentrated in the central portion of the survey area (Figure 12E).

Desert unicorn plant (*Proboscidea althaeifolia*)
Status: --/--; CRPR 4.3
Distribution: Imperial, Riverside, and San Diego counties; Arizona; New Mexico; Baja California and Sonora, Mexico
Habitat and Biology: Desert washes in Sonoran desert scrub. Elevation range is 500 to 3,300 feet AMSL. Blooms May to August (CNPS 2011).
Status in the Survey Area: Six individuals observed in the northeastern portion of the survey area (Figure 12G).

Special Status Plant Species with Potential to Occur

The 12 special status plant species observed in the proposed OWEF site are summarized in Section 3.2.2. Special status plant species with potential to occur due to suitable habitats, soils, and project vicinity are listed in Appendix D. The species are alphabetized by scientific name.

3.2.3 Special Status Animal Species

A total of 174 animal species were identified during the general and focused zoological surveys within the proposed OWEF site, and include 34 invertebrate species, 31 reptile species, 86 bird species, and 23 mammal species (Appendix C). All species were identified by direct observation, vocalizations, or presence of scat and/or tracks.

3.2.3.1 Focused Species Survey Results

Flat-tailed Horned Lizard

A total of 18 FTHL were found during the FTHL survey as well as during other surveys conducted by HELIX. All of the FTHL were found on the east of Shell Canyon Road on the eastern portion of the proposed project site (Figure 5). FTHLs were found within 9 of the 208 sample plots (4 percent of the plots). Twelve of the 18 FTHL were found within the surveyed sample plots. Six FTHL were found outside of sample plots, 2 during other surveys conducted by HELIX, and 4 during the FTHL survey. Fifteen of the FTHL found were adults, 2 were juveniles, and one was a hatchling. Two of the plots contained 2 adult FTHL lizards each (plots 189 and 190); the 2 lizards found in plot 190 were found together. Three FTHL were found during the follow up survey in 2 of the 12 resurveyed sample plots (16.7 percent of the resurveyed plots). Sample plot 173 had an adult and juvenile FTHL and sample plot 172 had an adult FTHL. Two FTHL were found during other surveys conducted by HELIX; one FTHL was found off site on the unnamed service road that intersects Shell Canyon Road and connects to County Highway S80 (Evan Hewes Highway) during a Avian Point Count survey. The other FTHL was found east of Shell Canyon Road during a Special Status Plant survey and it coincidentally was found within sample plot 192.

In accordance with the FTHL Rangewide Management Strategy (FTHL ICC 2003), all contiguous habitat within 2 miles of FTHL sightings is also assumed to be occupied by FTHL. There are approximately 2,752.3 acres of FTHL-occupied habitat (including assumed occupied habitat) in the proposed OWEF site.

Flat-tailed horned lizards were found in open desert scrub vegetation communities such as allscale scrub, creosote bush scrub, creosote bush-white bursage scrub, creosote bush-allscale scrub, and creosote bush-fourwing saltbush scrub. Dominant plant species recorded at FTHL sightings were creosote bush, white bursage, Sahara mustard, desert plantain, cryptantha, Emory's indigo bush, ocotillo, desert sand verbena, saltbush, and Mojave spine flower.

The majority of the proposed OWEF site is composed of gravel and gravelly sands of varying degrees of coarseness. Finer, windblown sandy areas occur in discrete patches in several areas of the proposed project site; some of the larger areas include 2 areas in the extreme southwestern portion of the project site north of westbound Interstate 8; an area just east of Sugarloaf Mountain and north of eastbound Interstate 8 containing sand dunes; and another small area north of the Imperial Freeway and west of Shell Canyon

Road. The majority of the lower elevation area east of Shell Canyon Road is comprised of fine, windblown sand containing hummocks.

Desert horned lizards were found throughout the proposed project site (Figure 7). There was a total of 47 DHL found during the FTHL survey, of which 23 were adults and 25 were juveniles. Forty-five DHL were found in 37 of the 208 sample plots (17.8 percent) and 2 DHL were found by Shell Canyon Road. There were 2 DHL found in 9 of the sample plots (24, 30, 81, 144, 158, 159, 165, 184, 201). In 2 of the sample plots (184 and 173), both DHL and FTHL were found. In sample plot 184, 2 DHL juveniles were found along with one FTHL juvenile. In sample plot 173, one DHL juvenile, one FTHL adult, and one FTHL juvenile was found. Seven of the DHL were found during revisits in 7 of 12 revisited sample plots (58 percent of the revisited sample plots).

Historical data indicates that the FTHL was once present in eastern San Diego County as well as the Imperial Valley (Turner et al. 1980 and Hodges 1997 as cited in FTHL ICC 2003). HELIX conducted a database search of the CDFG's CNDDB (accessed September 27, 2010) and determined that 4 FTHLs have been reported in or near the proposed OWEF site. The one outside the proposed OWEF site was reported in 1932. Three FTHL were reported in 1982; the first location is near the northwest corner of the proposed OWEF site along Imperial Highway; the second is near Imperial Highway and the existing 500 kV transmission line; while the third reported location is near Imperial Highway and Shell Canyon Road. It is not possible to determine if these detections were within the proposed OWEF site because the CNDDB includes an approximately 3,000-foot buffer around each of these points, which is due to the low accuracy of the locations of the reported sightings. The CNDDB search did not return reports of FTHL found within or near the proposed OWEF site after 1982. HELIX also conducted a database search using the BLM's reported data for FTHL. The BLM reported data includes one reported FTHL sighting within the proposed OWEF site east of Shell Canyon Road in the northeast portion of Site 1 (date of the reported sighting was July 20, 2005).

Barefoot Banded Gecko

The barefoot banded gecko has a limited distribution ranging from eastern San Diego County and western Imperial County, to as far south as central Baja California, Mexico along eastern Peninsular Ranges (CDFG 2004; Grismer 2002). The proposed OWEF site is located at the eastern edge of the known species range.

The barefoot banded gecko is strictly nocturnal and active above ground when daytime temperatures are above 100 degrees Fahrenheit and when nighttime temperatures are in the high 80s. They are most active above ground from May through July and can be found as early as February and as late as September (CDFG 2010a). The barefoot banded gecko has soft skin with fine granular scales which causes it to seek humid conditions. The barefoot banded gecko becomes active above ground when humidity is about 25 percent.

The barefoot banded gecko inhabits arid desert slopes with habitat consisting of large boulders and rock outcrops at the heads of canyons and are found at elevations ranging from sea level to 2,300 feet AMSL (Grismer 2002; Dugan, 2010). The barefoot banded gecko spends most of its life deep in rock crevices and subterranean chambers where the humidity is relatively higher then above ground (CDFG 2004). Their diet consists of various insects.

The barefoot banded gecko was not detected despite exhaustive searches which totaled fifty survey hours. The CDFG survey protocol for barefoot banded gecko states that, "*if no lizards are detected within 4 surveys according to this protocol, it will be assumed the species is not present in the surveyed area.*" Therefore barefoot banded gecko is assumed to be absent within the 2010 survey area.

Subsequent changes have been made to the preliminary project design since the 2010 surveys were conducted. Turbines in the southwest corner of Site 1, which were located in suitable barefoot banded gecko habitat, were eliminated from the project design. The redesign of the access roads and underground collection system in Site 2 includes several areas that fall outside of the 2010 barefoot banded gecko survey area and within potential habitat for the species. The portions of the redesigned project that occur within suitable barefoot banded gecko habitat and outside of the areas surveyed in 2010 will be surveyed in 2011.

Raptor Migration Study

The proposed OWEF site is not located in a known avian migration corridor (Aspen 2008; personal communication, Unitt 2007). No known raptor migration study has been conducted in this area prior to this study (HELIX 2010d). The majority of the proposed OWEF site supports desert scrub vegetation and dry desert washes. The proposed OWEF site does not contain the appropriate topography to funnel migrating birds. With the exception of Sugarloaf Mountain and the rocky terrain in the southwest portion of the proposed OWEF site, the proposed OWEF site is generally flat and is located east of the Jacumba Mountains and south of the Coyote Mountains. The proposed OWEF site lacks a major ridgeline, water bodies, and large stands of mature trees. The closest major water body is the Salton Sea, which is 30 miles to the northeast, and the irrigated agricultural fields near El Centro are approximately 15 miles to the west of Ocotillo. The results of the labor-intensive fall 2009 and spring 2010 migration counts indicate that the proposed OWEF site is not part of a major migratory pathway for diurnally migrating raptor species or other migratory bird species.

Raptor use estimates and relative abundance were calculated using the fall 2009, spring 2010, and fall 2010 migration count data (Table 3). Raptor use was calculated by dividing the number of raptor observations in each respective survey period by the number of observation hours in each of those survey periods. Relative abundance was calculated by dividing the number of observations of each raptor species by 1,136, which is the total number of raptor observations during the 3 seasons. Raptor use estimates

from spring 2011 are being analyzed at the time this report was prepared and are not included below.

Table 3
RAPTOR USE AND RELATIVE ABUNDANCE

Species	Fall 2009		Spring 2010		Fall 2010		Total		Relative Abundance
	No.	No./hr	No.	No./hr	No.	No./hr	No.	No./hr	
American kestrel	17	0.022	16	0.017	43	0.074	76	0.033	0.07
Cooper's hawk	2	0.003	1	0.001	3	0.005	6	0.003	0.01
Ferruginous hawk	4	0.005	0	0	0	0	4	0.002	<0.01
Golden eagle	8	0.010	0	0	11	0.019	19	0.008	0.02
Merlin	1	0.001	0	0	2	0.003	3	0.001	<0.01
Northern harrier	8	0.010	2	0.002	2	0.003	12	0.005	0.01
Osprey	1	0.001	5	0.005	1	0.002	7	0.003	0.01
Prairie falcon	15	0.020	20	0.021	9	0.016	44	0.019	0.04
Red-tailed hawk	68	0.089	121	0.127	249	0.431	438	0.191	0.39
Sharp-shinned hawk	1	0.001	0	0	3	0.005	4	0.002	<0.01
Swainson's hawk	1	0.001	2	0.002	17	0.029	20	0.009	0.02
Turkey vulture	15	0.020	316	0.332	83	0.144	414	0.181	0.36
Unidentified raptor	24	0.031	37	0.039	28	0.048	89	0.039	0.08
Total Observations	**165**	**0.216**	**520**	**0.546**	**451**	**0.781**	**1,136**	**0.496**	
Total Identified Species	**12**		**8**		**11**		**12**		
Observation Hours	**763**		**952**		**577.5**		**2,292.5**		

Raptor use of the proposed OWEF site was very low during the fall 2009 and 2010 and spring 2010 migration periods with less than one raptor observed per hour of observation. Raptor use of the proposed OWEF site in spring 2010 (0.546 observation/hour [hr]) was more than double the raptor use of the proposed OWEF site during fall 2009 (0.216 observation/hr) and less than raptor use of the proposed OWEF site in fall 2010 (0.781 observation/hr). With the exception of the turkey vulture (*Cathartes aura*), each raptor species' use of the proposed OWEF site did not vary dramatically between the 3 seasons. Turkey vulture use of the proposed OWEF site in the spring 2010 (0.332 observation/hr) was approximately 16 times greater than turkey vulture use in fall (0.020 observations/hr). However, turkey vulture use of the proposed OWEF site dropped in the fall 2010 (0.144 observations/hr).

During the fall 2009 migration counts, the species with the highest use of the proposed OWEF site were the red-tailed hawk (*Buteo jamaicensis*; 0.089 observation/hr), American kestrel (*Falco sparverius*; 0.022 observation/hr), prairie falcon (*Falco mexicanus*; 0.020 observation/hr), and turkey vulture (0.020 observation/hr). During the spring 2010 migration counts, the species with the highest use of the proposed OWEF

site were the turkey vulture (0.332 observation/hr), red-tailed hawk (0.127 observation/hr), and prairie falcon (0.021 observation/hr). During the fall 2010 migration counts, the species with the highest use of the proposed OWEF site were the red-tailed hawk (0.431 observation/hr), turkey vulture (0.144 observation/hr), and American kestrel (0.074 observation/hr).

Golden eagle use of the proposed OWEF site has remained low over the nearly 2 years of raptor migration counts: 0.01 observation/hr during fall 2009 migration counts, none during spring 2010 migration counts, and 0.02 observation/hr during fall 2010 migration counts. This species was observed in fall 2010 during APCs as further described below. The species was also observed during a burrowing owl survey on June 17, 2010. Note that the raptor migration counts and APC surveys are different studies. Although a raptor migration count and APC may have occurred on the same day, these surveys were never done concurrently. These golden eagle use estimates suggest relatively low use of the proposed OWEF site during the study period, especially when compared to other projects in California such as the High Winds Wind Resource Area (0.3 eagle/30-minute survey during pre-construction surveys and 0.1 eagle/30-minute survey during the post-construction period; Kerlinger et al. 2005, 2006 as cited in HELIX 2010d) and the Diablo Winds Wind Resource Area (0.3 eagle/30-minute survey during the post-construction period; WEST 2008 as cited in HELIX 2010d).

The turkey vulture accounted for 36 percent of the total observations during the study period. The red-tailed hawk constituted 39 percent of the total observations. Prairie falcon accounted for 4 percent of total observations and American kestrel accounted for 7 percent of total observations. There were 89 raptor sightings that could not be definitively identified, which accounted for approximately 8 percent of observations.

It should be noted that no California condors (*Gymnogyps californianus*) were observed during the raptor migration counts or any other survey conducted for the proposed project. Historically, California condors occurred throughout the southwestern United States into Mexico (as well as in pockets of New York and Florida; Audubon California 2011). However, by the early 1900s California condors were largely confined to the rugged mountains and foothills of central and southern California. California condors have been released in California and Arizona in the 1990s and in Baja California, Mexico in 2003. The proposed OWEF site is not within the current range of this species Audubon California 2011).

Avian Point Count

The proposed OWEF site does not support large populations of resident avian species, and many of the resident species observations, including raptor observations, were likely repeat observations of the same individual. The proposed OWEF site does not appear to be part of a major migration corridor for either common or special-status species.

One listed avian species (Swainson's hawk) was seen infrequently and only during the spring migration period. Golden eagles were seen only once during the APCs (September

2, 2009) and were observed flying at a height above the rotor swept area (RSA). Golden eagles were also observed occasionally flying overhead during other studies conducted in the proposed OWEF site, and the majority of the observations occurred in the fall. Burrowing owls occur in the proposed OWEF site in low densities and use the site during the breeding season and wintering season. The other observations of sensitive raptor species included a single observation each of northern harrier (*Circus cyaneus*) and ferruginous hawk (*Buteo regalis*), which were both observed flying above the RSA. The most abundant sensitive species was loggerhead shrike (*Lanius ludovicianus*), which accounted for approximately 3 percent of the total bird observations, which likely was the result of several resident individuals being documented on multiple occasions throughout the year. The other sensitive bird species (yellow warbler [*Dendroica petechia brewsteri*], Vaux's swift [*Chaetura vauxi*], brant [*Branta bernicla*], and LeConte's thrasher [*Toxostoma lecontei*]) were seen in very low numbers primarily in the spring.

A total of 77 species and 6,387 total observations were documented during the weekly point counts over the year-long study. Species abundance was variable throughout the year with the biggest fluctuations occurring between seasons. The weekly surveys began in fall, which had one of the lower seasonal detection rates (5.4 individuals per 30-minute period). The lower detection rate corresponded with very high daytime temperatures in September and early October. Detection rates would have been lower during fall, but substantial numbers of house finches (*Carpodacus mexicanus*) were documented flying through the proposed OWEF site. Species abundance was comparatively greater in the winter and spring compared to the fall. Winter averaged 7.2 individuals detected per 30-minute period, and spring averaged 8.3 individuals detected per 30-minute period. Species abundance varied little in winter months, with fluctuations in house finch numbers typically responsible for variations. Migratory species were responsible for major fluctuations in spring. At the peak of spring migration (first week of April) there were 306 individuals detected, most of which were migratory. This yielded the highest weekly detection rate for the year of 14.4 individuals per 30-minute period. Hot temperatures and the absence of migratory species accounted for low abundance in summer (average of 3.0 individuals per 30-minute period).

Raptor observations account for 3.6 percent of birds recorded during the year. Peak observations occurred in the spring, with the higher numbers likely correlated with an increase in prey availability. The majority of these sightings were common desert species, including the red-tailed hawk, turkey vulture, American kestrel, and prairie falcon. The other raptor observations included a single individual of each of these 3 species (ferruginous hawk, Cooper's hawk [*Accipiter cooperii*], and northern harrier) and a single Swainson's hawk on 3 separate occasions in spring.

Migratory species account for 19 percent of total bird observations over the year-long study. Approximately 68 percent of individuals that were considered migrants occurred during the peak of spring migration (March-April), and the average detection rate was 4.38 migratory individuals per 30-minute period between March and April. It is also notable that migratory species abundance surpassed that of resident species twice within this period. This is in contrast to fall migration where resident species outweighed

migratory species 10:1. The amount of food resources available to migrants in spring is much greater than in winter, which is likely the primary factor responsible for the disproportionate numbers associated with migratory species richness and abundance for these 2 migratory periods. Even with the greater migration abundance in spring, site use by migratory species should be considered low given the size of the proposed OWEF site. Many of the migratory species were detected in relatively low numbers, which indicates this is not a major migratory corridor for passerines. Exceptions to this are Bullock's oriole (*Icterus bullockii*), western kingbird (*Tyrannus verticalis*), and swallows (Family Hirundinidae).

Results of the year-long survey averaged a detection rate of 5.96 individuals per 30-minute period, with peak detection rates occurring in March and April. This average is within the range of other studies conducted in arid regions. A study conducted in Blythe during the spring of 2009 (EDAW AECOM and Bloom Biological 2009 as cited in HELIX 2010d) resulted in an average detection rate of 1.05 individuals per 30-minute period. Another study conducted in Barstow in the spring and fall of 2006 averaged 2.62 individuals per 30-minute period (Jones and Bloom 2007 as cited in HELIX 2010e). A study conducted in 2009 in Clark County resulted in an average detection rate of 16 individuals per 30-minute period. The comparatively low detection rates in arid regions are likely associated with a lack of necessary resources (food, water, shelter, etc.). The proposed OWEF site does not contain any water resources, and prey availability is low through most of the year. The exception is a few months in spring following the short rainy season. Plants during this time of year were in bloom, and there seemed to be a substantial increase in insect and small mammal abundance.

Golden Eagle

During the 2010 occupancy surveys, 21 golden eagle nests were observed that accounted for 5 golden eagle territories, 2 of which were considered active territories in 2010 (i.e., Coyote Mountains West and Table Mountain). One nest in Coyote Mountains West showed signs of early activity in 2010, but no eggs or incubating adults were observed at the nest site. Two nest sites in the Table Mountain territory showed possible signs of activity in 2010, but no eggs or incubating adults were observed.

WRI has documented successful breeding of golden eagles at both Table Mountain (most recent in 2004) and Carrizo Gorge (most recent in 2007) territories in the past few years. Coyote Mountains East has been inactive for a number of years due primarily to drought and disturbance by off-road vehicle activity. Coyote Mountains West has been active with nest activity in recent years, but no young have been seen produced. No nests were discovered in the historic Mountain Springs territory (WRI 2011). The lack of successful golden eagle nesting in the last few years is not unusual because healthy populations of golden eagles may average as few as 62 percent of pairs breeding in any one year (Kochert et al., 2002, as cited in WRI 2011).

While evaluating the data from these 2010 surveys, it was important to take the recent drought and its likely effects on golden eagle reproduction into account. The California

Department of Water Resources advises that California is entering its fourth year of serious drought as a result of below average precipitation and run-off since the autumn of 2006 (State of California 2010, as cited in WRI 2011). Without knowing the effects of the drought on golden eagle breeding, one might come to a false conclusion about the population of golden eagles within the survey area. Because breeding in southern California begins in January, and this survey was initiated in late March when only those eagles that were successful would be incubating, no opportunity was afforded to get a complete count of golden eagle pairs that attempted to build nests and reproduce but failed. Therefore, the number of active territorial pairs of golden eagles in the survey area could be higher than those actually identified (WRI, 2011).

Burrowing Owl

Three burrowing owls were observed during the Phase I habitat assessment (January 2010), 2 burrowing owl pairs were documented during the 2010 Phase III breeding season surveys (June/July 2010), and 20 burrowing owls were documented during the fall/winter 2010 surveys.

Three burrowing owls and one active burrow were documented during the Phase I habitat assessment surveys in January 2010. The 3 owls were in the north-central and western portions of Site 1 of the proposed OWEF site; the active burrow was in Site 2 of the proposed OWEF site. The Phase I habitat assessment only covered a portion of the OWEF site.

Two burrowing owl pairs with active burrows were documented during the 2010 breeding season surveys (i.e., the Phase III focused survey) in June/July 2010. Burrowing owls were repeatedly observed near the westernmost active burrow in July and early August 2010. It is assumed that these repeat observations near the westernmost burrow were the owls associated with the active burrow.

In addition, 20 burrowing owl locations were documented throughout the proposed OWEF site during the fall/winter 2010 special status plant surveys, including 17 burrowing owls in Site 1 and 3 burrowing owls in Site 2. Ten of the 20 burrowing owls observed in fall/winter 2010 were observed with a burrow. Two additional burrowing owl burrows were observed in fall/winter 2010 but no owls were observed with the burrows. The new areas that were added to the preliminary project footprint that fell outside of the 2010 breeding season survey areas were surveyed for burrowing owl burrows as part of the fall 2010 special status plant surveys and no additional burrows were noted. These areas will be surveyed again during the 2011 burrowing owl breeding season survey window.

Burrowing owl observations on the proposed project site during the non breeding season is likely a combination of owls that use the Imperial Valley for breeding and owls that migrate through and/or overwinter in the project site from their breeding grounds in Canada and the northern United States.

Bats

Five bat species were identified in the proposed OWEF site: California myotis (*Myotis californicus*), big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*), western pipistrelle (*Pipistrellus hesperus*), and western mastiff bat (*Eumops perotis californicus*). The western mastiff bat is the only special status species (BLM Sensitive). The majority of the bats (approximately 77 percent) were recorded during the spring (103 calls; May-June 2010) and summer (56 calls; August - September 2010). No significant bat activity was recorded or observed during the winter or fall 2010 survey periods (winter = 15 calls; fall = 31 calls).

Bat activity was recorded at only 7 distinct locations within the proposed OWEF site. The remainder of the proposed OWEF site showed no bat activity, either through the echolocation recording or use of the thermal imaging camera. Most bat activity was located along the western edge of the proposed OWEF site. Other locations identified during the surveys recorded bats only along the perimeter of the proposed OWEF site. The thermal imaging camera was used to identify the total number of bats flying when an echolocation signal was recorded. More than 95 percent of the time, the calls recorded represented only a single individual flying in the vicinity. Bats were infrequently observed in the interior of the proposed OWEF site during the survey, and only from a distance using the thermal imaging camera.

Overall, the bat species recorded was surprisingly low with only 57 identifiable calls recorded during the 40 nights of surveys (only 21 calls were unable to be identified to species and typically represented fragments of calls within the same frequency range as the species identified during the surveys).

The most abundant species recorded was the big brown bat (30 percent), the California myotis (23.5 percent), and the western pipistrelle (21 percent). The western mastiff bat and the Mexican free-tailed bat were rarely recorded within the proposed OWEF site (6 percent and 4 percent, respectively). Approximately 10 percent of the calls recorded were unidentifiable.

It is not surprising that the bat use of the proposed OWEF site is remarkably low. More than 70 percent of the surveys conducted failed to record a single bat during the night, and bat activity was generally restricted to the perimeter of the proposed OWEF site, with infrequent observations of bats. These results are most likely due to a variety of factors. First, the interior of the proposed OWEF site lacks any form of standing water. For most bat species, this is a vital feature of their habitat. The presence of water also significantly influences the presence and abundance of insect prey. Surveys conducted in similar desert environments such as the Palm Springs area, southern Nevada's Mojave desert, and the dry desert washes of the Great Basin Desert show similar patterns in bat species distribution and associations. Bats observed during the surveys were either moving through the proposed OWEF site (22 percent), actively foraging (60 percent), or were both foraging and moving through (18 percent).

The second factor associated with the low numbers of bats may be due to a lack of suitable roosting sites nearby such as cave formations, suitable cliff faces, and boulders. Very little mining has been done around the proposed OWEF site that would result in the kind of abandoned mines that support bat populations. It was noted, however, that bat frequency and abundance increased outside the proposed OWEF site particularly on the west side of the valley. While bats are known to fly distances of more than 25 miles from a roost site, they typically do so in search of abundant foraging opportunities or water resources, and both of these are generally lacking within the proposed OWEF site.

The results of the long-term echolocation monitoring stations suggest that most of the bats in the proposed OWEF site were flying at lower heights. This is likely true for all species except the western mastiff bat, which is typically found flying at higher elevations than many species, particularly when moving through an area. Observations with the thermal imaging camera showed similar results. For all species of bats detected, they were typically found at elevations between 3 to 75 feet above ground level. Again, the only exception was the western mastiff bat, which was typically observed above 75 feet. Four of the 5 species detected in the proposed OWEF site are considered to be at low risk and are not considered special status species. The California myotis, western pipistrelle, Mexican free-tailed bat, and big brown bat are rather ubiquitous throughout southern California. All of the species use multiple roost types, except for the western pipistrelle, which predominantly uses cliffs and crevices.

Similarly, the western mastiff bat is limited to only roosting in cliffs and crevices high enough to drop from and take flight. Only the western mastiff bat is considered a high risk species. This species is typically found roosting in cliff faces at higher elevations and is typically not migratory. It does not hibernate, but may (at least in southern California) make small migratory movements into the warmer areas of Mexico or desert during the winter. This species is severely limited to habitat areas based on its high demand for water (it is the largest bat in North America). The special status of this species is largely due to this water restriction. Because of its larger body size and its wing structure, the western mastiff bat is unable to drink from water sources less than 90 feet long. As a result, they are no longer found in many areas that were previously occupied due to habitat loss or conversion. Because there are no water bodies within the proposed OWEF site that could support this species, and foraging potential is rather limited, this rare occurrence is probably from bats only moving through the proposed OWEF site infrequently in search of suitable habitat.

No significant pattern in the distribution or flight behavior of bats was observed. The majority of the bats detected as moving through the proposed OWEF site were following the valley bottoms and desert washes. In the rare instances where bats were detected commuting long distances, they were typically following the Imperial Highway corridor, emerging from unknown roost sites in the west (likely outside the proposed OWEF site), and heading in a southeasterly direction.

It is unlikely that significant numbers of bats occur throughout the proposed OWEF site. All survey results suggest that the majority of the bat population in the local area occurs

outside of the Ocotillo valley area. No significant resources for foraging or water exist, severely limiting the bat abundance and diversity, particularly when compared with adjacent mountain ranges to the west and the Imperial Valley to the east.

Peninsular Bighorn Sheep

Peninsular bighorn sheep use a wide variety of plant types as food sources including shrubs, forbs, cacti, and grasses (USFWS 2001). Although steep, escape-route terrain is closely associated with PBS, low rolling and flat terrain including foothills and washes provide an alternative source of high-quality browse forage during times when resources become limited (USFWS 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans are also used for breeding, feeding, and movement (USFWS 2001).

Peninsular bighorn sheep are closely associated with mountainous habitat and often are hesitant to venture far from escape terrain (Geist 1971 as cited in USFWS 2000). Although they have been documented to move great distances from escape terrain on rare occasions (Schwartz et al. 1986 as cited in USFWS 2000), it is common to observe animals moving a short distance from escape terrain in search of forage or water sources or moving between neighboring mountain masses. Researchers have documented animals ranging at a variety of distances from mountainous terrain (greater than 20 percent slope), from one-half mile to 1.6 miles (USFWS 2000). The USFWS Essential Habitat for PBS is generally defined as the area that extends one-half mile out from 20 percent slopes (USFWS 2000).

Peninsular bighorn sheep exhibit a natural patchy distribution because of natural breaks in mountainous habitat (Schwartz et al. 1986 and Bleich et al. 1990a and 1996, as cited in USFWS 2001). While PBS have been documented in the Peninsular Ranges since early explorers, such as Anza, observed them in the 1700s (Bolton 1930 as cited in USFWS 2001), the distribution of PBS has become more fragmented in the recent past, possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS 2001).

An important influence on bighorn sheep population trends are their behavioral responses to human activity. Bighorn sheep were classified as a wilderness species by Aldo Leopold (1933) because they usually declined when confronted with expanding human developments and activities (USFWS 2010b). Over the past 75 years, numerous other scientists and land managers have expressed concerns regarding the impact of human activities on bighorn sheep populations (Horesji 1976, Hicks and Elder 1979, Graham 1980, Leslie and Douglas 1980, Hamilton et al. 1982, Stemp 1983, Miller and Smith 1985, Gionfriddo and Krausman 1986, Krausman and Leopold 1986, Smith and Krausman 1988, Etchberger et al. 1989, Krausman et al. 2001, Papouchis et al. 2001 as cited in USFWS 2010b). These concerns have been echoed in the Peninsular Ranges where PBS have altered their movement and habitat use patterns in response to human activity (Jorgensen and Turner 1973, Hicks 1978, Olech 1979, Cunningham 1982, DeForge and Scott 1982, Gross 1987, Sanchez et al. 1988 as cited in USFWS 2010b).

The impacts of human development extend beyond the urban edge into PBS habitat. Growing human populations and their increased activities adjacent to and within PBS habitat have the potential to adversely affect PBS by directly converting habitat to human uses and fragmenting remaining use areas. Additionally, the behavioral responses of PBS to human activities may alter how they utilize resources occurring in their environment. These altered behavior patterns may be less than optimal and could eventually negatively affect population trajectories (USFWS 2010b).

Currently, the PBS is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S./Mexico border to the San Jacinto Mountains in Riverside County (USFWS 2001).

Boyce (2010) recommended the redesign of the preliminary project design to remove turbines from the southwest corner of Site 1 because of the documented sightings of PBS in the I-8 Island (i.e., the area between the eastbound and westbound lanes of I-8, the northern portion of which is in the proposed OWEF site), because the area is rated high in the habitat suitability analysis by Rubin et al. (2009), and due to the fact the bighorn sheep use the Devil's Canyon crossing under I-8 as a means to access the I-8 Island. The project proponent revised the project site plan to eliminate the 14 wind turbines originally proposed in the southwest corner of Site 1.

Peninsular bighorn sheep were observed in the portion of the I-8 Island within Site 1 during other biological surveys for OWEF by HELIX in March and April 2010. No other PBS sightings have been noted during other biological field studies that have been conducted between September 2009 and February 2011.

The PBS location data obtained from CDFG and USFWS and the HELIX/Western Tracking Institute preliminary PBS tracking study data indicate a high level of PBS use near the Devil's Canyon undercrossing of I-8 (southwest of the Site 1) and within the I-8 Island, including the portion of the I-8 Island within and directly adjacent to Site 1. The CDFG tracking data also indicate that 3 PBS lambing sites were used in 2010 within the portion of the I-8 Island within and directly adjacent to Site 1.

The 2011 HELIX/Western Tracking Institute PBS study conducted to date indicates that with the exception of the portion of the I-8 Island in the southwest portion of Site 1, the Project Area is not currently occupied (Figure 4). No recent sign has been found in the PBS study areas except for along Devil's Canyon to the south of Site 1 and the I-8 Island. Historic PBS sign has been documented within each of the 3 PBS survey areas. The sign noted thus far includes 3 tracks and numerous bedding areas documented along ridgelines in the southwest portion of Site 1 and the southwest portion of Site 2. The sign documented to date is not considered to be from recent PBS activity because evidence of recent activity (e.g., scat, fresh tracks, and/or hair) has not been documented. In addition, the motion-triggered cameras have not documented movement of PBS into the OWEF project area. These results suggest these areas have been used in the past, but have not been used recently by PBS. The spring 2011 PBS study by the HELIX/Western Tracking

Institute team will continue through May to monitor for PBS use within and adjacent to the Project Area.

Peninsular bighorn sheep have recently recolonized the I-8 Island. CDFG is currently conducting a tracking study of 6 radio-collared bighorn sheep ewes. The point locations obtained thus far indicate that in 2010, ewes moved from Carrizo Gorge into the I-8 Island, used the Island area for lambing in 2010, and stayed in the Island area for several months of 2010. While the CDFG tracking study is providing some initial information on bighorn sheep use in the area, the study is following only 6 ewes, which amounts to less than 10 percent of the bighorn population in the area. With the exception of the I-8 Island, there have not been other recorded sightings of PBS in proposed OWEF site by HELIX, the CDFG tracking study, or in the USFWS database of bighorn sheep locations.

The point locations also thus far indicate that PBS move seasonally between Carrizo Gorge and the Coyote Mountains using Sweeney Pass (R. Botta, CDFG, pers. comm. 2010 as cited in USFWS 2010c). Sweeney Pass is located northwest of the main portion of the Coyote Mountains and approximately 6 miles northwest of Site 1. No evidence of PBS movement between Carrizo Gorge and the Coyote Mountains has been documented to occur through the proposed OWEF site.

While USFWS Essential Habitat for bighorn sheep occurs north of the southwest corner of Site 1, in the west-central portion of Site 1, and in the southwestern portion of Site 2, none of these areas appear to be regularly used by the species. However, it is recognized that bighorn sheep may occasionally use the flat desert terrain and desert washes in the Essential Habitat areas as an alternative source of forage during times when resources become limited, but bighorn sheep have not been documented within Essential Habitat in the proposed OWEF site during other surveys conducted between 2009 and 2011.

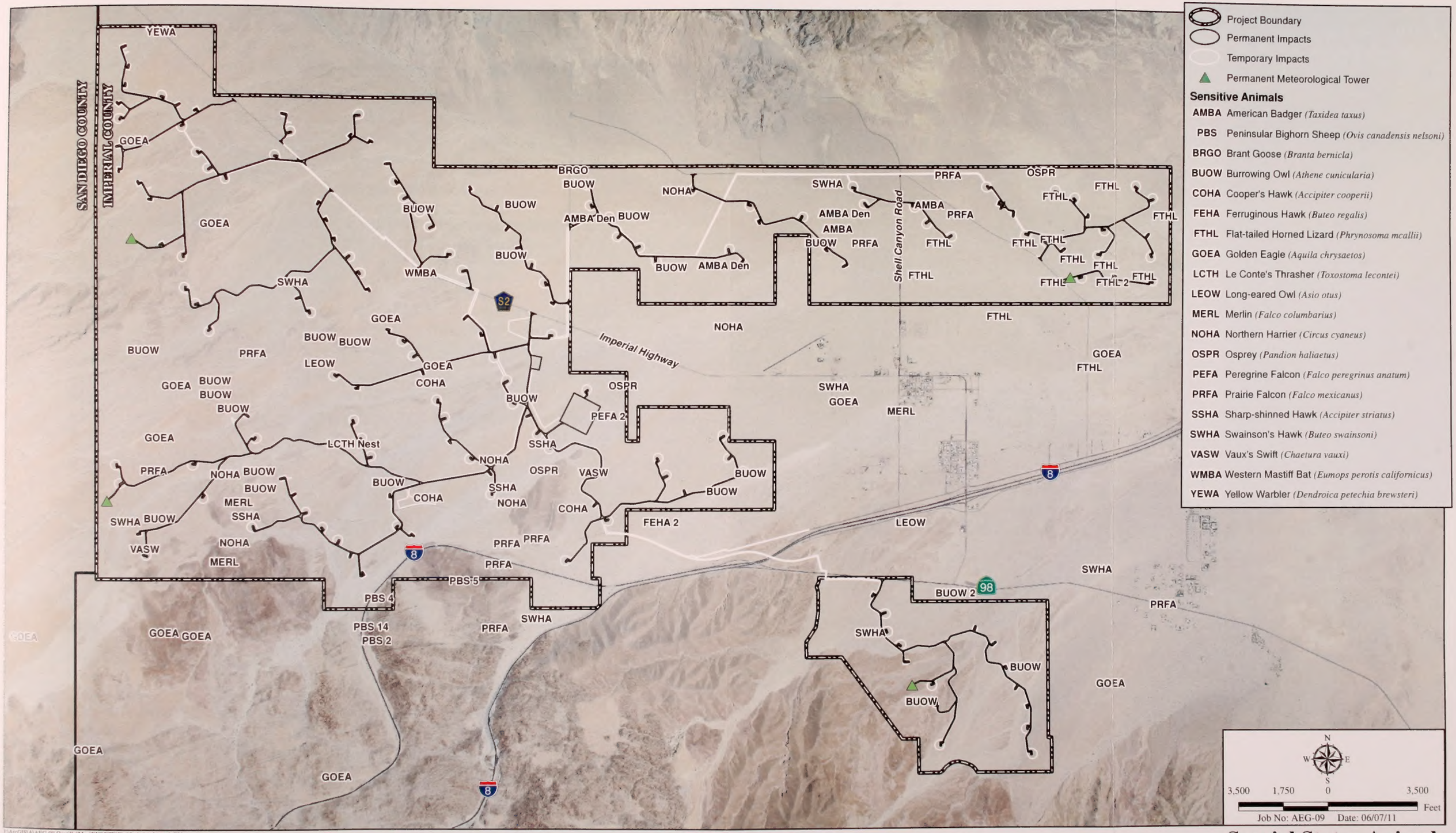
3.2.3.2 Special Status Animal Species Observed

A total of 174 animal species were identified during the general and focused zoological surveys within the proposed OWEF site, and include 34 invertebrate species, 31 reptile species, 86 bird species, and 23 mammal species (Appendix C). All species were identified by direct observation, vocalizations, or presence of scat and/or tracks.

Special status animal species are those that are:

- Threatened, endangered, proposed, or candidates for listing under the federal ESA or state equivalents;
- Considered to be of other special status by the U.S. Fish and Wildlife Service and/or California Department of Fish and Game (CDFG; 2009).
- BLM-designated sensitive species (CDFG 2009).

Twenty-four special status animal species observed/detected within the proposed OWEF site. These species are further discussed below and some locations are depicted on Figure 13. A list of all animal species observed or detected within the proposed OWEF



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Special Status Animals

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Figure 13

site can be found in Appendix C. An explanation of the status codes is provided as Appendix F.

Reptiles

Flat-tailed horned lizard (*Phrynosoma mcallii*)
Status: --/SSC; BLM Sensitive
Distribution: The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al. 1980 as cited in FTHL ICC 2003).
Habitat: Occurs in desert washes and desert flats with cobbly, gravelly, or sandy soils; require native ant populations, particularly harvester ants (*Pogonomyrmex* sp.).
Status in the proposed OWEF site: A total of 18 FTHL were found within the proposed OWEF site during the FTHL survey, as well as during other surveys conducted by HELIX (see Section 3.2.3.1 and Figure 5). All of the FTHL were found east of Shell Canyon Road in the northeastern portion of the proposed OWEF site. In accordance with the FTHL Rangewide Management Strategy (FTHL ICC 2003), all contiguous habitat within 2 miles of FTHL sightings is also assumed to be occupied by FTHL. There are approximately 2,752.3 acres of FTHL-occupied habitat (including assumed occupied habitat) in the proposed OWEF site.

Rosy boa (*Charina trivirgata*)
Status: --/--; BLM Sensitive
Distribution: Southern California into northern Baja California, southwestern Arizona
Habitat: Desert, arid scrub, brushland, rocky chaparral-covered foothills - particularly where moisture is available.
Status in the proposed OWEF site: Observed in rocky habitat in the southwest portion of the proposed OWEF site during surveys for the barefoot banded gecko. The locations of rosy boa were not mapped.

Birds

Cooper's hawk (*Accipiter cooperii*)
Status: Nesting; --/WL
Distribution: Throughout the continental U.S. excluding Alaska and parts of Montana and the Dakotas. Winters south to Mexico and Honduras.
Habitat: Fall migrant and winter resident in the desert regions of southern California.
Status in the proposed OWEF site: Six observations were made during the migration count surveys: 2 observations in fall 2009, one observation in spring 2010, and 3 observations in fall 2010. One additional observation was made during an APC survey in April 2010. Some representative locations are shown on Figure 13.

Sharp-shinned hawk (*Accipiter striatus*)
Status: --/WL
Distribution: This species is a fall migrant and winter resident in the desert regions of southern California
Habitat: Usually observed in areas with tall trees or other vegetative cover but can be observed in a variety of habitats
Status in the proposed OWEF site: Four observations of sharp-shinned hawk were made within the proposed OWEF site, including one observation during the fall 2009 migration survey and 3 observations during the fall 2010 migration study. Some representative locations are shown on Figure 13. Species not observed during the spring 2010 migration survey.

Golden Eagle (*Aquila chrysaetos*)
Status: Bald and Golden Eagle Protection Act covered, SC, BCC/WL, Fully Protected; BLM Sensitive
Distribution: Golden eagle is an uncommon permanent resident and migrant throughout California, except center of Central Valley. Species is perhaps more common in southern California than in north. Approximately 46 pairs of golden eagles currently nest in San Diego County (Aspen 2008; Bittner 2007); an accurate estimate of eagle pairs in Imperial County is not known.
Habitat: Habitat typically includes rolling foothills, mountain areas, sage-juniper flats, and desert. Golden eagles eat mostly hares, rabbits, and rodents, but will eat other mammals, birds, reptiles, and some carrion. This species needs open terrain for hunting such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al. 1988).
Status in the proposed OWEF site: Golden eagles were observed on 5 survey dates during fall 2009 migration counts, no survey dates during the spring 2010 migration counts, and 10 survey dates during the fall 2010 migration counts. Observations were of either a single golden eagle or a group of 2 or 3 eagles, likely as a family group of 2 adults and one juvenile. One juvenile and 2 adult golden eagles were also observed during an APC survey. Some representative locations are shown on Figure 13.

During the spring 2010 helicopter surveys, 21 golden eagle nests were observed that accounted for 5 golden eagle territories, 2 of which were considered active territories in 2010 (i.e., Coyote Mountains West and Table Mountain). One nest in Coyote Mountains West showed signs of early activity in 2010, but no eggs or incubating adults were observed at the nest site. Two nest sites in the Table Mountain territory showed possible signs of activity in 2010, but no eggs or incubating adults were observed.

Long-eared owl (*Asio otus*)
Status: --/SSC
Distribution: Occurs within desert areas
Habitat: Oak woodlands and riparian forests in proximity to open foraging habitat
Status in the proposed OWEF site: One individual observed in the west central portion of the proposed OWEF site (Figure 13)

Burrowing owl (*Athene cunicularia*)
Status: SC, BCC/SSC (burrow sites); BLM Sensitive
Distribution: This small owl is found the length of the State of California in appropriate habitats. The burrowing owl is migratory over much of its range, even in southern California (Unitt 2004). Burrowing owl numbers have been markedly reduced in California for at least the past 60 years. Conversion of grasslands, other habitat destruction, and poisoning of ground squirrels, has contributed to the reduction in numbers in recent decades, which was noted in the 1940s and earlier.
Habitat: The burrowing owl is a year-long resident of open, dry grassland and desert habitats. It is also found as a resident in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats as well as agricultural lands.
Status in the proposed OWEF site: Three burrowing owls were observed during the Phase I habitat assessment (January 2010), 2 burrowing owl pairs were documented during the 2010 Phase III breeding season surveys (June/July 2010), and 20 burrowing owls were documented during the fall/winter 2010 surveys (see Section 3.2.3.1). Burrowing owl observations on the proposed project site during the non-breeding season is likely a combination of owls that use the Imperial Valley for breeding and owls that migrate through and/or overwinter in the project site from their breeding grounds in Canada and the northern United States.

Brant Goose (*Branta bernicla*)
Status: --/SSC
Distribution: Winters in Baja California, Mexico (Reed et al 1998)
Habitat: Does not breed in California. Occurs in the state primarily as a spring and fall migrant and winter visitor; passes mainly far offshore in fall and close inshore in spring when staging birds are numerous in isolated coastal estuaries. During the non-breeding season, brant require well-protected, shallow marine waters with intertidal eel-grass beds, primarily within bays and estuaries. Their extensive use of natural habitats contrasts with that of most other geese of the Northern Hemisphere, which now primarily use agricultural land throughout winter (Shuford and Gardali 2008a).
Status in the proposed OWEF site: A dead individual found underneath the existing 500 kV transmission lines, in the northern portion of the proposed OWEF site (Figure 13). It is assumed the individual was migrating through the area.

Ferruginous hawk (*Buteo regalis*)
Status: BCC/WL; BLM Sensitive
Distribution: Does not breed in southern California. The species rarely occurs in desert valleys (Unitt 2004).
Habitat: Occurs in southern California as an uncommon winter resident and is associated with open grasslands
Status in the proposed OWEF site: Species observed on 3 dates in October 2009 during the fall 2009 migration survey (Figure 13). Species also observed during an APC survey in December 2009. Species not observed during the spring 2010 or fall 2010 migration surveys.

Swainson's hawk (*Buteo swainsoni*)
Status: BCC/ST
Distribution: Species migrates through Imperial County during its southward migration in the fall and during its northward migration in spring. Large groups known to roost in the town of Borrego Springs (approximately 40 miles to the northwest) during spring and fall migration, but the species is not known to breed in Imperial County (Unitt 2004).
Habitat: Occurs in desert, shrubsteppe, grassland and agricultural habitats (Woodbridge 1998).
Status in the proposed OWEF site: A total of 20 individuals were observed during migration count surveys: one in fall 2009, 2 in spring 2010, and 17 in fall 2010. Three additional observations were made during APC surveys in spring 2010 (Figure 13).

Vaux's Swift (*Chaetura vauxi*)
Status: SC/SSC
Distribution: Occurs rarely and irregularly in winter in southern California (Garrett and Dunn 1981 as cited in Shuford and Gardali 2008b).
Habitat: May roost in chimneys or other man-made structures, and prefers to breed in old growth forests in western North America to central California (Shuford and Gardali 2008b).
Status in the proposed OWEF site: Species observed migrating through the site during the spring and fall migration periods.

Northern harrier (*Circus cyaneus*)
Status: Nesting; SC/SSC
Distribution: Widespread throughout temperate regions of North America and Eurasia. Winters and migrates throughout California from below sea level in Death Valley to 9,800 feet AMSL.
Habitat: Sloughs, wet meadows, marshlands, swamps, prairies, plains, grasslands, and shrublands. They nest on the ground, usually near water, or in tall grass, open fields, clearings, or on the water (Snyder 1993).
Status in the proposed OWEF site: A total of 12 individuals were observed during migration count surveys: 8 in fall 2009, 2 in spring 2010, and 2 in fall 2010. One additional observation was made during APC surveys in fall 2009. Some representative locations are shown on Figure 13.

Yellow warbler (*Dendroica petechia brewsteri*)
Status: SC, BCC/SSC
Distribution: Occurs principally as a migrant and summer resident in California.
Habitat: Breeds April through July and generally occupies riparian vegetation in close proximity to water along streams and in wet meadows (Lowther et al. 1999 as cited in Shuford and Gardali 2008d).
Status in the proposed OWEF site: A total of 3 individuals were observed flying through the western portion of the proposed OWEF site during APC surveys in May 2010.

Willow flycatcher (*Empidonax traillii*)
Status: FE (ssp. *extimus*), None (ssp. *brewsteri*)/SE (both)
Distribution: A neotropical migratory bird that breeds in North America and migrates outside the continental U.S. during the non–breeding, winter season.
Habitat: Neotropical migratory species and 2 subspecies are known to migrate through southern California during spring and fall. Breeding habitat is restricted to extensive riparian areas with substantial riparian understory and flowing water. During migration, birds may be found in riparian areas and desert habitats, such as mesquite thickets.
Status in the proposed OWEF site: One individual observed migrating through the proposed OWEF site in May 2011. No suitable breeding habitat exists within the proposed OWEF site. The individual observed was not identified to subspecies.
Merlin (*Falco columbarius*)
Status: SC/WL
Distribution: Uncommon, winter resident in the southwestern U.S.
Habitat: Usually observed in grasslands but can occur in any habitat except dense woodlands
Status in the proposed OWEF site: A total of 3 individuals were observed during migration count surveys: one in fall 2009 and 2 in fall 2010. Species not observed during the spring 2010 migration surveyor during APC surveys.

Prairie falcon (*Falco mexicanus*)
Status: SC, BCC/WL
Distribution: Resident in the desert regions in all seasons except summer
Habitat: Nesting occurs on cliff or bluff ledges or occasionally in old hawk or raven nests; foraging occurs in grassland or desert habitats
Status in the proposed OWEF site: A total of 44 observations were made during migration count surveys: 15 in fall 2009, 20 in spring 2010, and 9 in fall 2010. Nine additional observations were made during APC surveys.

American peregrine falcon (*Falco peregrinus anatum*)
Status: Delisted, BCC/Delisted, FP
Distribution: Rare year-round but more abundant near the coast and in winter
Habitat: Generally, areas with cliffs near water where prey (shorebirds and ducks) is concentrated. Preferred hunting areas are agricultural fields, meadows, marshes, and lakes. Nesting usually occurs on cliff ledges or in a scrape in debris, and occasionally in the old nests of other birds.
Status in the proposed OWEF site: Two individuals were observed perched on the existing 500 kV transmission tower in the central portion of the proposed OWEF site (near Sugarloaf Mountain) in fall 2009. Suitable nesting habitat not present within proposed OWEF site.

Loggerhead shrike (*Lanius ludovicianus*)
Status: SC, BCC /SSC
Distribution: Uncommon year-round resident in most of North America (Sibley 2003)
Habitat: Resident species found in grassland, open sage scrub, chaparral, and desert scrub.

Status in the proposed OWEF site: Species was observed regularly throughout the proposed OWEF site during migration counts and the APC study. Given that abundance of this species within proposed OWEF site, it was not mapped.

Osprey (*Pandion haliaetus*)
Status: SC/WL
Distribution: Regular neotropical migrant that is rare through the Anza-Borrego Desert and surrounding areas
Habitat: Coasts and inland lakes
Status in the proposed OWEF site: A total of 7 observations were made during migration count surveys: one in fall 2009, 5 in spring 2010, and one in fall 2010. Species not observed during APC surveys. Some locations are shown on Figure 13.

Brewer's sparrow (*Spizella breweri*)
Status: BCC/--
Distribution: In California, winters in the central and southern interior part of the state
Habitat: Favors low, dry vegetation (Audubon WatchList 2011)
Status in the proposed OWEF site: Observed throughout the year during APC study and also observed during migration counts. Species abundant within proposed OWEF site in the spring.

Le Conte's thrasher (*Toxostoma lecontei*)
Status: SC, BCC/SSC; BLM Sensitive
Distribution: Restricted to Anza-Borrego Desert
Habitat: Year-round resident in Mojave and Sonoran desert shrublands, mesquite bosque, and small-stature Joshua tree woodlands (Weigand and Fitton 2008).
Status in the proposed OWEF site: A total of 22 LeConte's thrashers were observed in the northwest and west-central portions of the proposed OWEF site, usually as a solitary individual or occasionally as a group of 2 or 3 individuals, during the APC study. A Le Conte's thrasher nest was also documented in Site 1 (Figure 13).

Mammals

Western mastiff bat (*Eumops perotis californicus*)
Status: --/SSC; BLM Sensitive
Distribution: Permanent resident in southern California
Habitat: Open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas.
Status in the proposed OWEF site: Detected in the western portion of the proposed OWEF site (Figure 13).

Peninsular bighorn sheep (*Ovis canadensis nelsoni*)
Status: FE/ST, FP
Distribution: Idaho and Montana south to California, Arizona, and New Mexico.

Habitat: PBS occur on steep, open slopes, in canyons, and in washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical because bighorn sheep primarily rely on their sense of sight to detect predators (USFWS 2001). Most PBS live between 300 and 4,000 feet in elevation AMSL, where average annual precipitation is less than 4 inches, and daily high temperatures average 40 degrees Celsius (104 degrees Fahrenheit) in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during the hotter months (USFWS 2001).
Status in the proposed OWEF site: PBS were observed in the proposed OWEF site in 2010 and 2011 within the I-8 Island (Figure 13). PBS lambing sites have also been documented by CDFG in the I-8 Island. PBS have also been observed along Devil's Canyon to the south of Site 1. Suitable habitat (i.e., steep, escape-route terrain) occurs to the west and south of Site 1. Suitable habitat also occurs to the west of Site 2, although it is considered marginal because it does not contain an abundance of steep, escape-route terrain).

American badger (*Taxidea taxus*)
Status: --/SSC
Distribution: Western and central U.S.
Habitat: Occurs primarily in grasslands, parklands, farms, and other treeless areas with friable soil and a supply of rodent prey. They are also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows (Sullivan 1996).
Status in the proposed OWEF site: Tracks and 3 American badger dens were observed in the northern portion of the proposed OWEF site (Figure 13).

3.2.3.3 Special Status Animal Species with Potential to Occur

Special status animal species with potential to occur within the proposed OWEF site are listed in Appendix E. The species are grouped into invertebrates, amphibians, reptiles, birds, and mammals, then listed by status and alphabetized by scientific name where status is the same.

3.2.4 Jurisdictional Waters of the United States/State

A formal jurisdictional delineation was conducted within the proposed OWEF site. Areas under Corps and CDFG jurisdiction occur throughout the proposed OWEF site.

Corps jurisdictional non-wetland Waters of the U.S. within the proposed OWEF site total 239.16 acres (Figures 14A-14D; Table 4). No Corps jurisdictional wetlands occur within the proposed OWEF site.

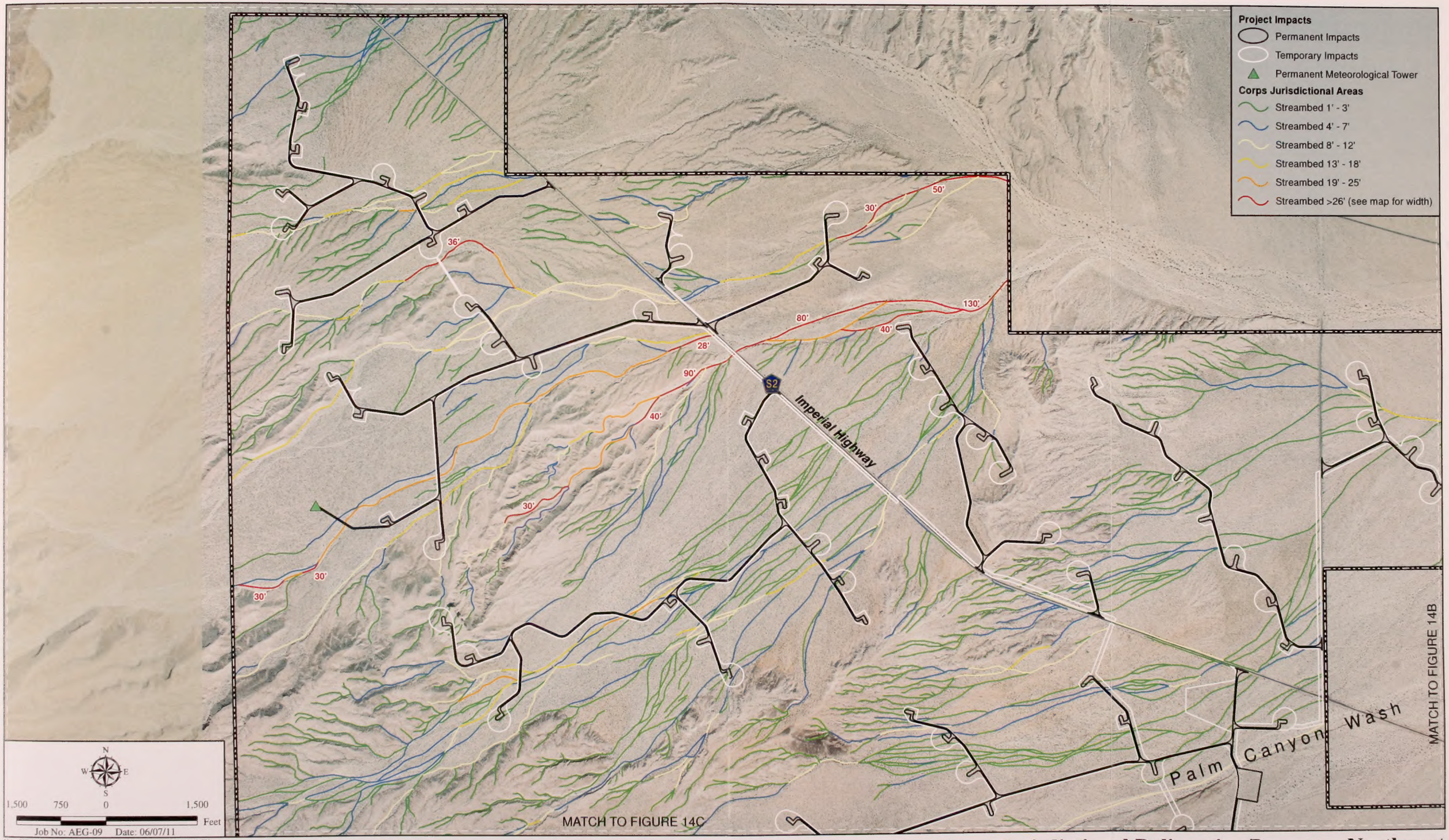
CDFG jurisdictional areas within the proposed OWEF site total 1,017.38 acres and consist of 859.00 acres of jurisdictional habitat and 158.38 acres of streambed (Figures 15A-15D; Table 4).

Table 4 EXISTING JURISDICTIONAL AREAS		
Habitat	**Corps**	**CDFG**
Jurisdictional Habitat		
Allscale scrub	0	17.51
Cheesebush scrub	0	379.70
Creosote bush-allscale scrub	0	216.01
Creosote bush-fourwing saltbush scrub	0	9.56
Desert lavender scrub	0	3.91
Fourwing saltbush scrub	0	6.53
Mesquite thicket	0	0.27
Smoke tree woodland	0	225.51
Non-Wetlands		
Drainage/Streambed	239.16	158.38
TOTAL	**239.16**	**1,017.38**

3.2.5 Invasive Weeds

Of the 222 plant species that were documented during the 2010 special status plant species surveys, 13 species were non-native. These species include Saharan mustard, Russian thistle (*Salsola tragus*), nettle-leaf goosefoot (*Chenopodium murale*), prickly-lettuce (*Lactuca serriola*), jointed charlock (*Raphanus raphanistrum*), London rocket (*Sisymbrium irio*), red-stem filaree, athel tamarisk (*Tamarix aphylla*), and 5 annual grasses, including Mediterranean schismus, slender wild oat (*Avena barbata*), red brome, six-weeks fescue (*Vulpia bromoides*), and rattail fescue (*Vulpia myuros*).

Five of these species are listed in the Cal-IPC Invasive Plant Inventory Database for the Sonoran Desert region (Cal-IPC 2006; Table 5); the remaining species are not included in the inventory database for the Sonoran Desert region. None of these species is included on the Federal Weed List (7 CFR 360; California Department of Food and Agriculture 2011a), nor is any on the Noxious Weed List—Section 4500 of the Food and Agriculture Code (California Department of Food and Agriculture 2011b).



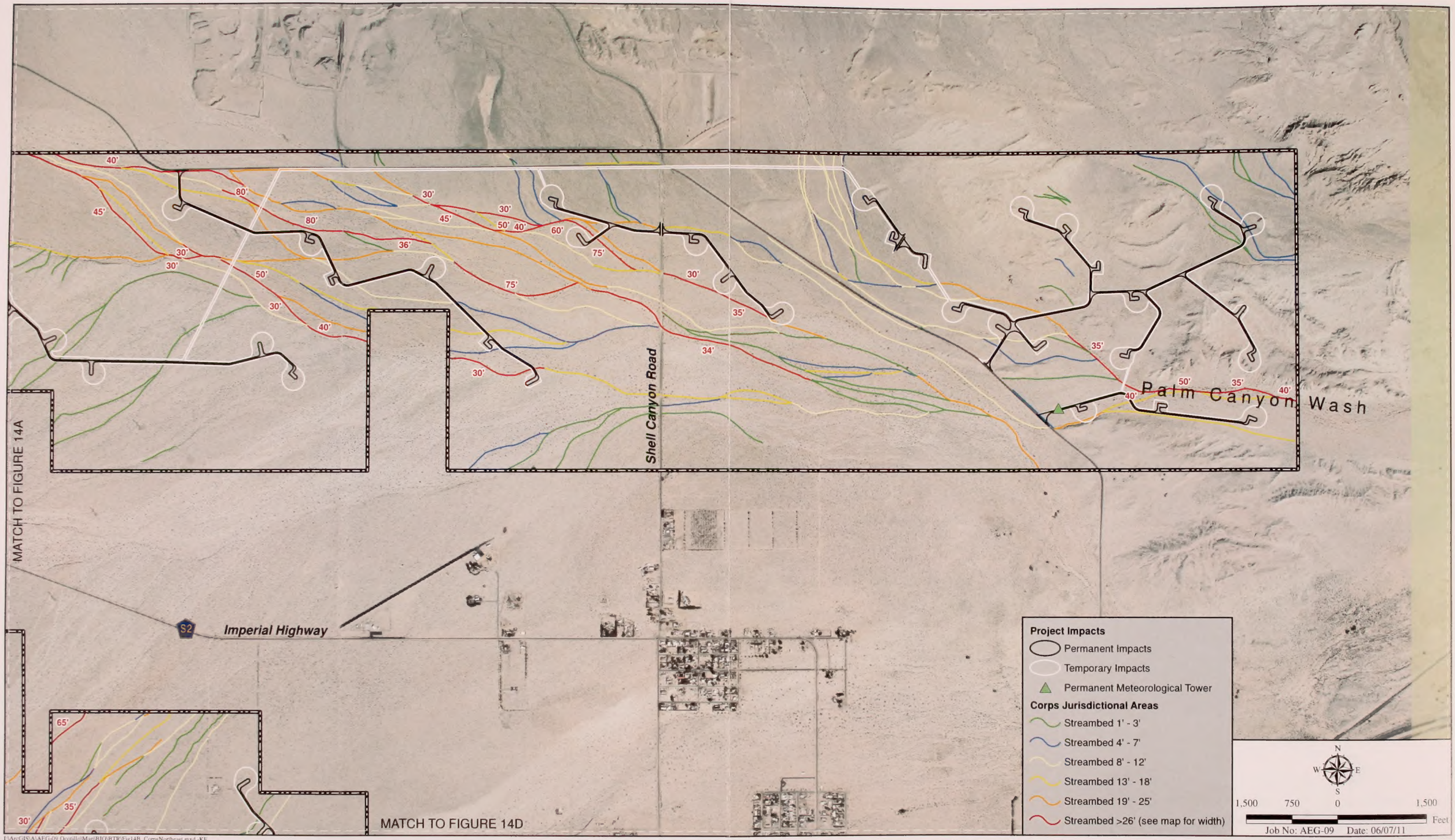
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Corps Jurisdictional Delineation/Impacts - Northwest

OCOTILLO EXPRESS WIND PROJECT

Figure 14A

HELIX Environmental Planning



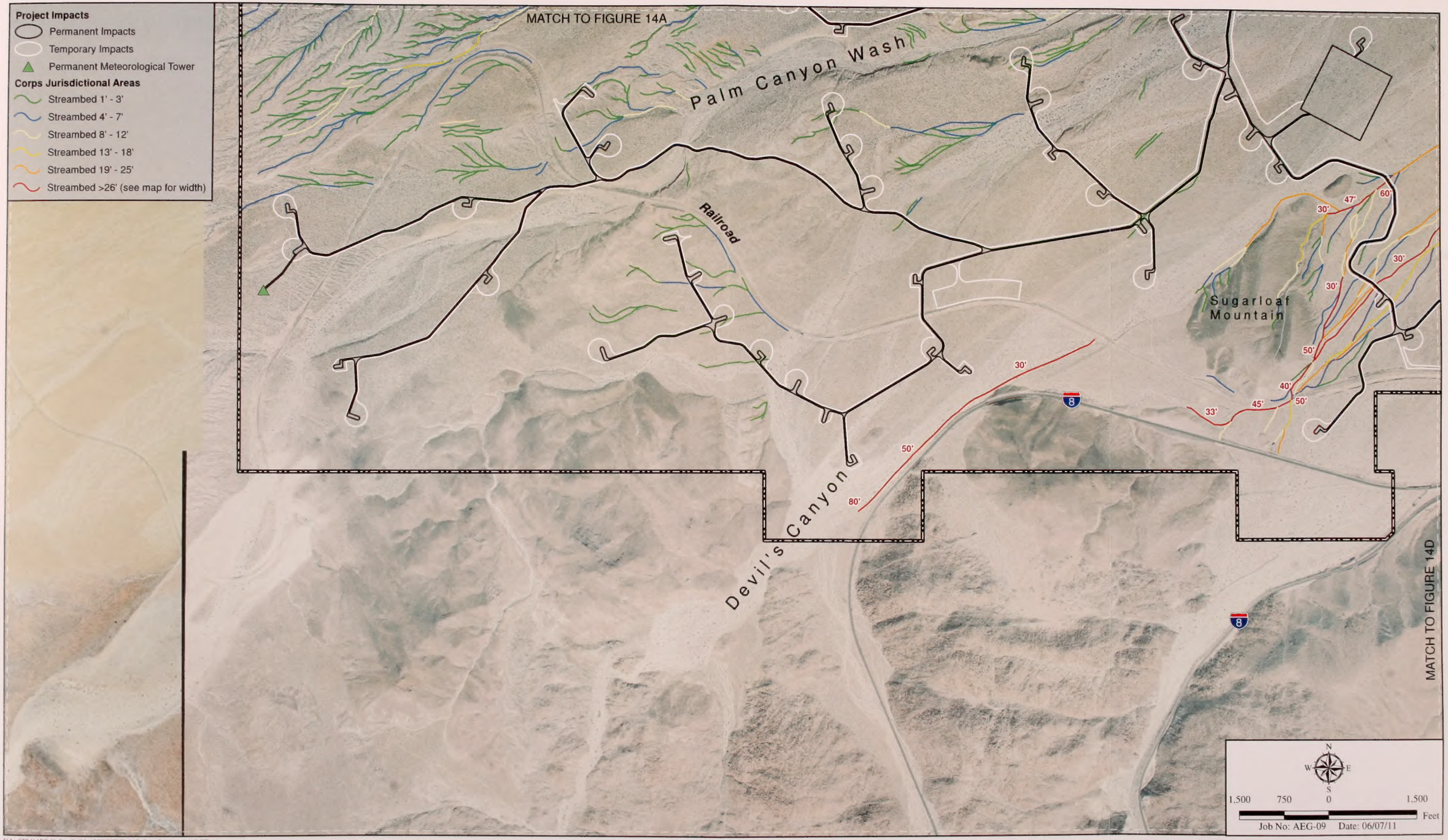
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Corps Jurisdictional Delineation/Impacts - Northeast

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 14B



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Corps Jurisdictional Delineation/Impacts - Southwest

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 14C

MATCH TO FIGURE 14B

MATCH TO FIGURE 14C

Myer Creek

Railroad

Coyote Wash

Imperial Highway

8

S2

98

30'

35'

40'

60'

30'

28'

Project Impacts
- Permanent Impacts
- Temporary Impacts
- Permanent Meteorological Tower

Corps Jurisdictional Areas
- Streambed 1' - 3'
- Streambed 4' - 7'
- Streambed 8' - 12'
- Streambed 13' - 18'
- Streambed 19' - 25'
- Streambed >26' (see map for width)

N
W E
S

1,500 750 0 1,500 Feet

Job No: AEG-09 Date: 06/07/11

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Corps Jurisdictional Delineation/Impacts - Southeast

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 14D

Project Impacts
- Permanent Impacts
- Temporary Impacts
- Permanent Meteorological Tower

CDFG Jurisdictional Areas
- Streambed 1' - 3'
- Streambed 4' - 7'
- Streambed 8' - 12'
- Streambed 13' - 18'
- Streambed 19' - 25'
- Streambed >26' (see map for width)
- Smoke tree woodland
- Unvegetated streambed

36'
28'
40'
30'
30'
30'
S2
Imperial Highway
Palm Canyon Wash
MATCH TO FIGURE 15B
MATCH TO FIGURE 15C

N
W E
S
1,500 750 0 1,500
Feet
Job No: AEG-09 Date: 06/07/11

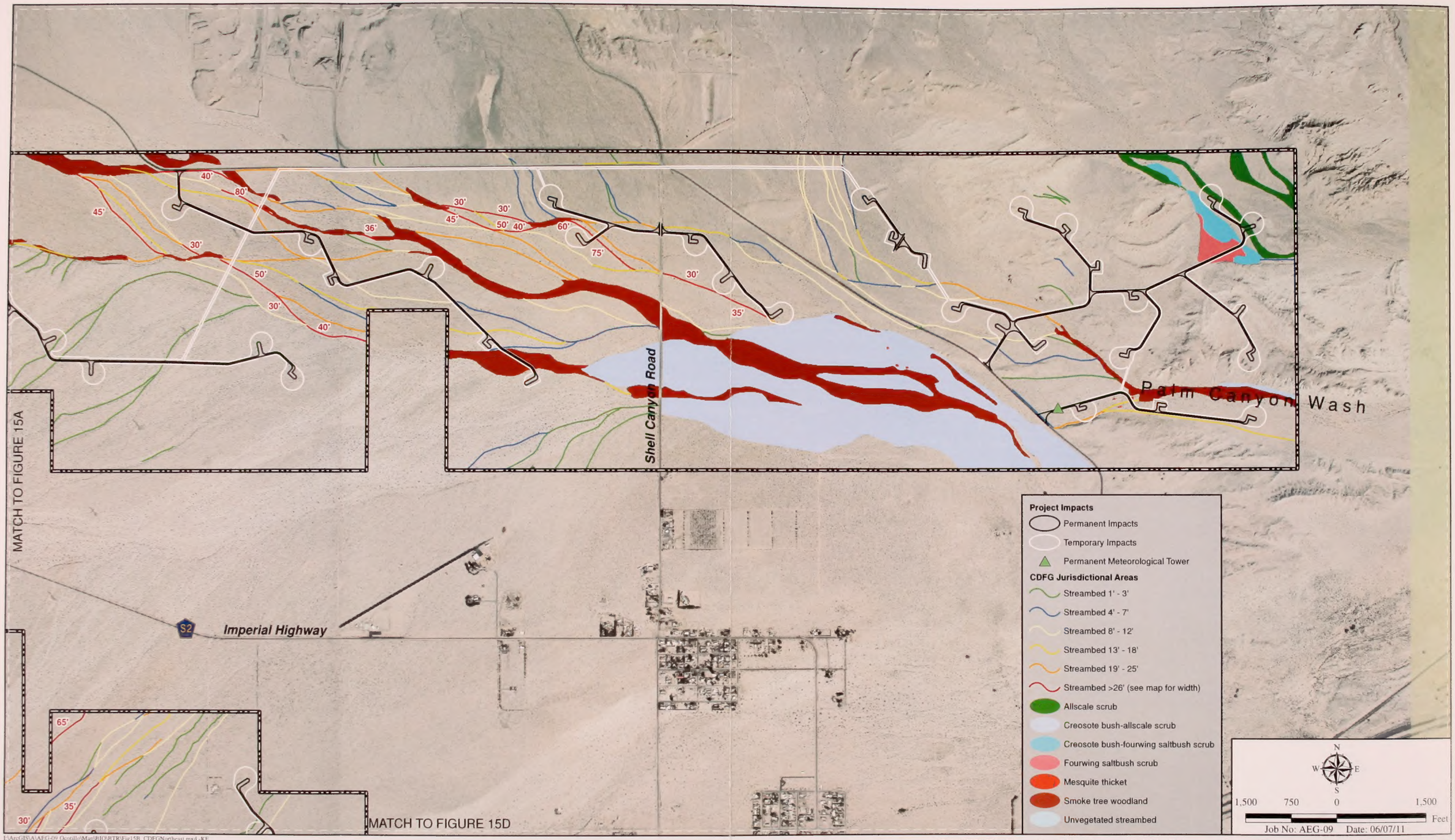
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CDFG Jurisdictional Delineation/Impacts - Northwest

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 15A



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CDFG Jurisdictional Delineation/Impacts - Northeast

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 15B

Project Impacts
- Permanent Impacts
- Temporary Impacts
- Permanent Meteorological Tower

CDFG Jurisdictional Areas
- Streambed 1' - 3'
- Streambed 4' - 7'
- Streambed 8' - 12'
- Streambed 13' - 18'
- Streambed 19' - 25'
- Streambed >26' (see map for width)
- Cheesebush scrub
- Desert lavender scrub
- Mesquite thicket
- Smoke tree woodland
- Unvegetated streambed

MATCH TO FIGURE 15A

Palm Canyon Wash

Railroad

Sugarloaf Mountain

47'
60'
30'
30'
30'
50'
40'
50'
45'
33'

Devil's Canyon

8

8

MATCH TO FIGURE 15D

N
W E
S

1,500 750 0 1,500 Feet

Job No: AEG-09 Date: 06/07/11

I:\ArcGIS\A\AEG-09 Ocotillo\Map\BIO\BTR\Fig15C_CDFGSouthwest.mxd -KF

CDFG Jurisdictional Delineation/Impacts - Southwest

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 15C

MATCH TO FIGURE 15B

MATCH TO FIGURE 15C

Myer Creek

Railroad

Coyote Wash

Imperial Highway

8

S2

98

30'

35'

40'

60'

30'

28'

Project Impacts
- Permanent Impacts
- Temporary Impacts
- Permanent Meteorological Tower

CDFG Jurisdictional Areas
- Streambed 1' - 3'
- Streambed 4' - 7'
- Streambed 8' - 12'
- Streambed 13' - 18'
- Streambed 19' - 25'
- Streambed >26' (see map for width)
- Cheesebush scrub
- Smoke tree woodland

N
W E
S

1,500 750 0 1,500 Feet

Job No: AEG-09 Date: 06/07/11

I:\ArcGIS\A\AEG-09 Ocotillo\Map\BIO\BTR\Fig15D_CDFGSoutheast.mxd -EV

CDFG Jurisdictional Delineation/Impacts - Southeast

OCOTILLO EXPRESS WIND PROJECT

HELIX Environmental Planning

Figure 15D

Table 5 INVASIVE WEEDS OBSERVED IN THE PROPOSED OWEF SITE		
Scientific Name Common Name	**Overall Cal-IPC Rating***	**Cal-IPC Level of Invasiveness**
Brassica tournefortii Saharan mustard	High	Severe
Bromus madritensis ssp. *rubens* red brome	High	Moderate
Vulpia myuros rattail fescue	Moderate	Moderate
Erodium cicutarium red-stem filaree	Limited	Limited
Salsola tragus Russian thistle	Limited	Limited

***High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
Moderate – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
Limited – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

The 5 species of invasive weeds are recognized at some level for their invasiveness. Two other non-native species, Mediterranean schismus and jointed charlock, are not listed as invasive but are suitable for inclusion for other reasons. Mediterranean schismus is suggested because it is widespread and appears invasive in the proposed OWEF site. Jointed charlock occurs in one location immediately adjacent to SR 98; given its location it may have only recently been introduced to the proposed OWEF site but may prove invasive.

Saharan mustard is widespread over the proposed OWEF site but varies in abundance. It is most abundant in sandy substrate, particularly where there is a history of human and or natural disturbances. The worst infestation of this species occurs south and west of the southwest corner of Site 1, adjacent to the railroad tracks in the area mapped as upland mustard. It is also prevalent in the most of the white bursage scrub habitat, particularly

adjacent to upland mustard and in Palm Canyon Wash. Small patches of Saharan mustard also occur elsewhere throughout the proposed OWEF site.

Red brome is infrequent in the proposed OWEF site. It was noted in at least 3 vegetation types, including Wolf's cholla, creosote bush-white bursage, and brittle bush scrubs. Although these vegetation types cover a significant portion of the proposed OWEF site, red brome does not comprise a significant constituent in the cover of any of these vegetation types. Stands of red brome typically consist of less than 5 plants, and the stands are widely scattered.

Rattail fescue was very rare in the proposed OWEF site and was only observed in a small handful of locations.

Red-stem filaree is relatively widespread but occurs in low densities. It was observed in big galleta grass shrub-steppe and 4 scrubs, including creosote bush-white bursage, creosote bush-white bursage scrub, cheesebush, and brittle bush. Nowhere in the proposed OWEF site does this species dominate the landscape. It typically occurs in diffuse numbers. This is the third most abundant weed in the proposed OWEF site.

Russian thistle occurs in very low numbers in the proposed OWEF site. It was noted in one vegetation type, cheesebush scrub, but only rarely.

Mediterranean schismus is widespread in the proposed OWEF site and occurs in many vegetation communities, including smoke tree woodland, badlands, and these scrubs: creosote bush-white bursage, creosote bush-white bursage scrub, cheesebush, white bursage, and creosote bush-brittle bush. It is most abundant in sandy substrate and uncommon elsewhere. It is the second most abundant weed in the proposed OWEF site.

Jointed charlock is known in one location-on the shoulder of SR 98.

The other species discussed here are essentially naturalized, and their distribution and abundance is not expected to change significantly without some outside influence (e.g., disturbance associated with establishment of a wind energy facility). Saharan mustard may be an exception to this, as it has been increasing its distribution throughout southern California's deserts independent of any project-related disturbances. Unlike the other invasives that occur in low numbers, jointed charlock only occurs next to the road. This indicates it may have only recently become established and its invasiveness cannot be ascertained. Therefore, it is considered potentially invasive.

3.3 REGULATORY CONTEXT

The federal, state, and local environmental regulations that apply to this project are provided in Appendix G.

4.0 IMPACTS

The proposed project would have a significant impact if it would:

1. Have a substantial adverse effect, either directly, or through habitat modifications on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFG or the USFWS;
2. interfere substantially with the movement of native resident or migratory fish or wildlife species, wildlife corridors, or wildlife nursery sites;
3. have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or USFWS; and/or
4. have a substantial adverse effect on federally protected water quality or wetlands as defined by Section 404 of the CWA.

The proposed project would not conflict with local policies or ordinances protecting biological resources since the County has no jurisdiction over federal lands (County of Imperial 1993). Where the proposed project occurs on non-federal lands, it would be consistent with the Imperial County General Plan's Land Use and Conservation and Open Space elements (County of Imperial 1993) and Land Use Ordinance (County of Imperial 2009).

The proposed project would not conflict with the provisions of an approved local, regional, or state habitat conservation plan since no such plan is applicable to the proposed OWEF site.

4.1 VEGETATION COMMUNITIES

Construction activities associated with the proposed project would result in temporary impacts to 483.1 acres and permanent impacts to 181.0 acres (Figures 11A-11D; Table 6). The 664.1-acre total impact area includes 9.8 acres of impacts that occurs off-site (i.e., the underground collection system and access road between Sites 1 and 2). These losses would occur through vegetation clearing, grading, or other surface disturbance (e.g., driving over vegetation). In the desert ecosystems, the definition of permanent impacts needs to reflect the slow recovery rates of its plant communities. Natural recovery rates from disturbance to these ecosystems depend on the nature and severity of the impact. For example, creosote bush can re-sprout a full canopy within 5 years after damage from heavy vehicle traffic (Gibson et al., 2004), but more severe damage involving vegetation removal and soil disturbance can take over a decade or more to fully recover. Other less-resilient species subjected to damage from heavy vehicle traffic are likely to die from such treatment, either immediately or over time.

Impacts to 7.1 acres of brittle bush scrub, 7.3 acres of desert agave scrub, less than 0.1 acre of mesquite thicket, 8.8 acres of smoke tree woodland, 53.0 acres of teddy bear cholla scrub, and 4.2 acres of white bursage scrub would be significant because they are considered sensitive natural communities, according to the CDFG (2010).

Implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable and delineation the limits of construction), MM 2 (conduct biological monitoring during construction), MM 3 (provide compensation for permanent impacts to sensitive vegetation communities), and MM 4 (revegetate temporarily disturbed areas) would reduce the level of impact to less than significant. Big galleta grass shrub-steppe and desert lavender scrub are also considered sensitive natural communities, according to the CDFG (2010b). However, the proposed project would not result in impacts to these 2 communities. Impacts to streambed are considered significant by CDFG and would be regulated under the California and Fish and Game Code as discussed in Section 4.5 below. Impacts to the other vegetation communities would be less than significant, and no mitigation is required because they are not considered sensitive natural communities in any local or regional plans, policies, or regulations, or by the CDFG or USFWS.

Table 6
IMPACTS TO VEGETATION COMMUNITIES/LAND COVERS

Vegetation Community/Habitat[2]	Acreage			
	Existing	Impacts		Avoided
		Temporary	Permanent[4]	
Allscale Scrub	128.1	6.9	2.0	119.2
Badlands and Mudhills[1]	162.0	0.1	0.1	161.8
Big Galleta Grass Shrub-steppe	1.9	0	0	1.9
Brittle Bush Scrub	92.9	5.3	1.8	85.8
Cheesebush Scrub	1,095.6	39.2	14.3	1,042.1
Creosote Bush Scrub	938.9	35.9	10.0	893.0
Creosote Bush-Brittle Bush Scrub	2,280.1	79.3	21.8	2,179.0
Creosote Bush-White Bursage Scrub	5,877.3	253.6	102.4	5,521.3
Desert Agave Scrub	248.5	5.1	2.2	241.2
Desert Lavender Scrub	3.9	0	0	3.9
Developed[1]	82.9	4.9	0.6	77.4
Disturbed Habitat[1]	7.6	0.4	0	7.2
Fourwing Saltbush Scrub	6.5	0.5	0.3	5.7
Mesquite Thicket	0.8	<0.1	0	0.8
Ocotillo Tall Scrub[1]	23.5	0	0	23.5
Railroad[1]	12.5	0.1	0.1	12.3
Rock/Large Boulder Outcrop[1]	4.8	0	0	4.8

Table 6 (cont.)
IMPACTS TO VEGETATION COMMUNITIES/LAND COVERS

Vegetation Community/Habitat[2]	Acreage			
	Existing	Impacts		Avoided
		Temporary	Permanent[4]	
Smoke Tree Woodland	380.9	7.3	1.5	372.1
Streambed[1]	15.3	<0.1	0	15.3
Teddy Bear Cholla Scrub[3]	663.0	33.0	20.0	610.0
White Bursage Scrub	176.2	3.4	0.8	172.0
Wolf's Cholla Scrub[2]	232.3	8.1	3.1	221.1
TOTAL	**12,435.5**	**483.1**	**181.0**	**11,771.4**

[1]Not listed in the Manual of California Vegetation (Sawyer, Keeler-Wolf, and Evans 2009).
[2]Vegetation mapping was done to the alliance level.
[3]Listed in the Manual of California Vegetation as teddy bear cholla patches.
[4]Permanent impact acreage does not include the potential sand/gravel source areas listed in Table 1 because these areas have not been identified.

Construction activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in indirect impacts to vegetation from increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can affect plants' photosynthetic capabilities, affect their productivity and nutritional qualities, and degrade the overall vegetation community. For example, the maximum rate of net photosynthesis of plants that received fine dust particulates was reduced to 21 percent of those of control plants in resinous leaflets of creosote bush, to 44 percent in resinous leaves and photosynthetic stems of cheesebush, and to 58 percent in non-resinous leaves of fourwing saltbush, which have vesiculated trichomes (small sac like hairs; Sharifi et al. 1997). Plants of all 3 species that received fine dust particulates showed reduced maximum leaf conductance, transpiration, and instantaneous water-use efficiency (Sharifi et al. 1997). Construction activities would also result in direct and indirect impacts to vegetation communities through soil erosion, which can accelerate the loss of nutrients in the soil and reduce the amount of nutrients available to plants in those vegetation communities (Okin et al. 2001). The impact would be considered significant if it resulted in a substantial adverse affect to sensitive vegetation communities. A dust control plan for the project is required by BLM to control fugitive dust during construction, in accordance with MM 7. Implementation of the dust control plan would reduce the level of impact to less than significant. Construction activities also have the potential to indirectly impact sensitive vegetation communities as a result of the introduction and/or spread of invasive plant species (see Section 4.3). Implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable and delineation the limits of construction), MM 2 (conduct biological monitoring during construction), and MM 6 (develop and implement an Integrated Weed Management Plan) would reduce the level of impact to less than significant.

4.2 PLANT SPECIES

The proposed project would result in direct impacts to individuals or populations of 6 of the 12 special status plant species documented within the rare plant survey area: Harwood's milk-vetch, brown turbans, deboltia, Wolf's cholla, long-lobed four o'clock, and Thurber's pilostyles (Table 7). These impacts would be significant and mitigation is required. Implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable and delineation the limits of construction), MM 2 (conduct biological monitoring during construction), MM 4 (revegetated temporarily disturbed areas), and MM 5 (implement special status plant species avoidance/restoration/ compensation) would reduce the level of impact to less than significant. No direct impacts to little San Bernardino Mountains linanthus, Haydon's lotus, Mountain Springs bush lupine, hairy stick-leaf, jack-ass clover, or desert unicorn plant are anticipated.

Table 7
IMPACTS TO SPECIAL STATUS PLANT SPECIES

Species	Total # of Individuals Observed in Survey Area	Temporary Impacts*	Permanent Impacts*	Percent of Total # Impacted**
Harwood's milk-vetch	32	2	0	6
Brown turbans	846,173	59,428	19,418	9
Deboltia	557	4	0	<1
Wolf's cholla	24,735	1,185	501	7
Long-lobed four o'clock	308	2	0	<1
Thurber's pilostyles	318	12	6	6

*Number of individuals impacted
**Total reflects rounding

Activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways also would result in indirect impacts to special status plant species from increased levels of dust that may settle on the plants. Increased levels of dust on plants can affect plants' photosynthetic capabilities, affect their productivity and nutritional qualities, and degrade the overall vegetation community. Implementation of a dust control plan (MM 7) would reduce the level of impact to less than significant. Construction activities also have the potential to indirectly impact special status plant species as a result of the introduction and/or spread of invasive plant species (see Section 4.3). Implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable and delineation the limits of construction), MM 2 (conduct biological

monitoring during construction), and MM 6 (develop and implement an Integrated Weed Management Plan) would reduce the level of impact to less than significant.

4.3 INVASIVE WEEDS

Invasive weeds are threats to native vegetation resources. They can displace native plants (including special status plant species that are present in the proposed OWEF site), increase the threat of wildfire by increasing fuel load, and supplant plants used as forage that are important to herbivorous species (including special status plant species that are present in the proposed OWEF site). Invasive weeds threaten vegetation resources in that they can exclude native plants (including special status species occurring in the project area), alter habitat structure, increase fire frequency and intensity, decrease forage for herbivorous wildlife (including special status species), and decrease water availability for both plants and wildlife.

Vehicles are the primary conduits for the spread of many invasive weeds. Construction activities and soil disturbance associated with the study area could indirectly introduce new invasive weeds to the proposed OWEF site and could further spread invasive weeds (such as Saharan mustard) that are already present in the proposed OWEF site. The Saharan mustard populations mapped by HELIX during field surveys conducted for the OWEF site is provided in Figure 16.

The impacts from the spread of invasive weeds are potentially significant in that they could have a substantial adverse effect on special status species and/or sensitive natural communities, so mitigation to minimize and/or avoid these impacts would be required. As described in Sections 4.1 and 4.2, implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable and delineation the limits of construction), MM 2 (conduct biological monitoring during construction), and MM 6 (develop and implement an Integrated Weed Management Plan) would reduce the level of impact to less than significant.

4.4 ANIMAL SPECIES

The proposed project has the potential to cause direct and/or indirect adverse effects to animal species during construction, O&M, and decommissioning. These impacts could occur primarily during vegetation removal and grading activities (which could cause mortality), vehicle use (which could cause road kill or crushing of occupied burrows), and collisions with the wind turbines within the RSA, which could cause mortality.

Additionally, the proposed project has the potential to interfere substantially with the movement of native resident or migratory wildlife species, as further described below for migrating birds and PBS.

4.4.1 Construction Impacts

4.4.1.1 Flat-tailed Horned Lizard

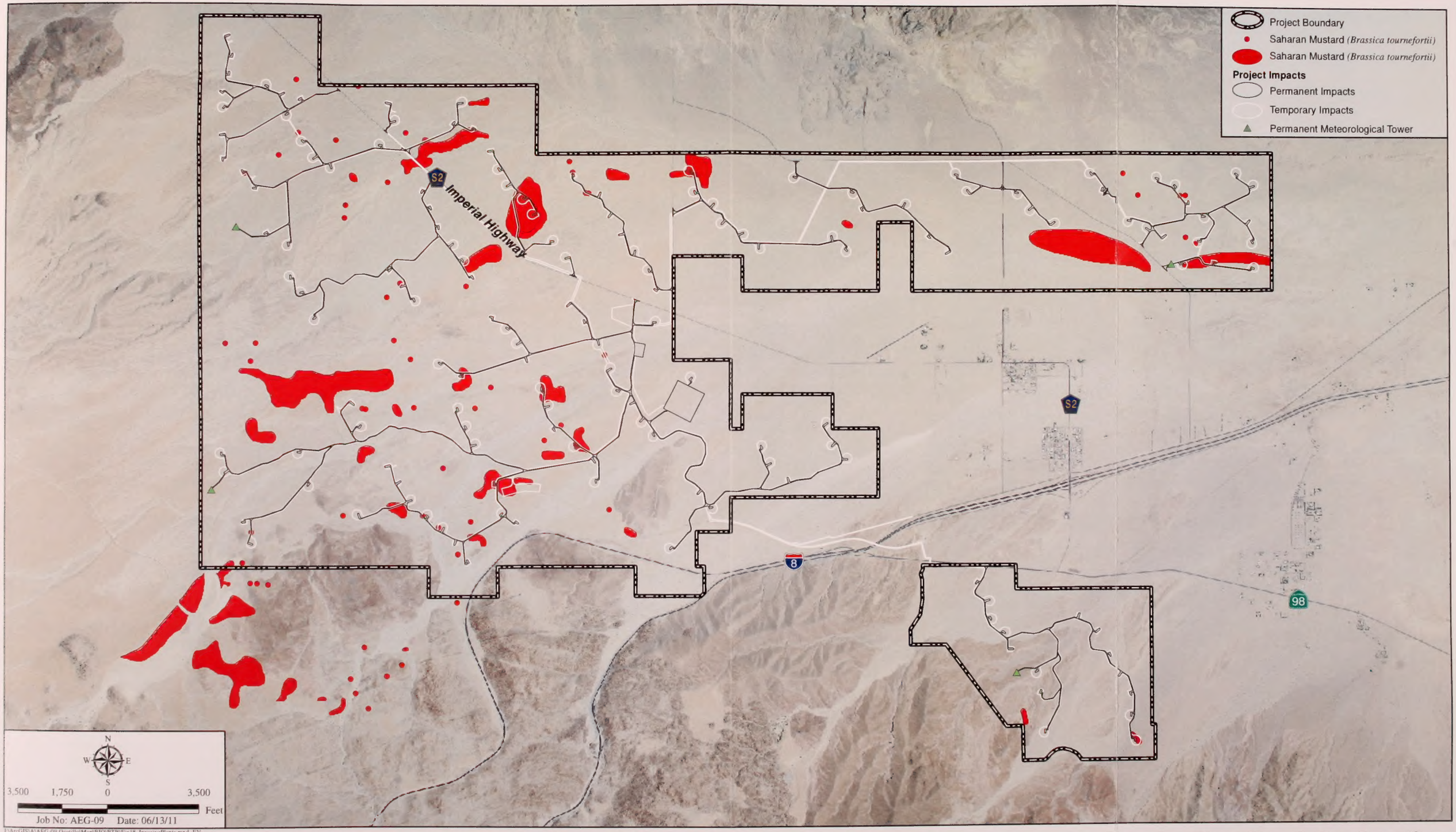
Direct Impacts

Direct effects to FTHL from construction include mortality and habitat loss. FTHL were only found in the northeast portion of Site 1 (east of Shell Canyon Road). In accordance with the FTHL Rangewide Management Strategy, all contiguous habitat within 2 miles of a FTHL sighting shall be considered occupied by FTHL. The portion of the OWEF site considered occupied (includes assumed occupied habitat) by FTHL is shown in Figure 17. Construction activities such as grading, the movement of construction vehicles or heavy equipment, and the installation of OWEF facility components may result in the direct mortality, injury, or harassment of FTHLs including the potential crushing of individuals, disruption of FTHL essential behaviors, disturbance by noise or vibrations from heavy equipment, and handling of FTHL during relocation efforts. These impacts are considered significant and would be reduced to a level below significant by the implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (biological monitoring by a FTHL-experienced biologist), MM 9 (15 mile-per-hour speed limit along access roads in FTHL habitat), MM 10 (grading [to the maximum extent practicable] during the active season), MM 11 (removal of FTHL from harm's way), MM 14 (evaluate and implement the best measures to reduce FTHL mortality on access roads), and MM 15 (provide annual reporting).

There are approximately 2,752.3 acres of FTHL-occupied habitat (including assumed occupied habitat, as described in Section 3.23) in the proposed OWEF site. The proposed project would permanently impact approximately 30.3 acres of this habitat and would temporarily impact approximately 107.1 acres of this habitat (Figure 17). Impacts to occupied FTHL habitat are considered significant and would be reduced to a level below significance by the implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (biological monitoring by a FTHL-experienced biologist), MM 4 (revegetate temporarily disturbed areas), MM 9 (15 mile-per-hour speed limit along access roads in FTHL habitat), and MM 12 (compensation for habitat loss in accordance with the FTHL Rangewide Management Strategy).

Indirect Impacts

Potential indirect effects during construction include light, predation, and habitat degradation that may adversely affect FTHL. Construction will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night in FTHL habitat, lighting will be needed for worker safety. This lighting will be directed toward the interior of the disturbance area or at the specific location being constructed in order to minimize adverse effects. Impacts associated with night lighting are considered significant and would be reduced to a level below significance by the implementation of MM 2 (biological monitoring by a FTHL-experienced biologist and preparation and

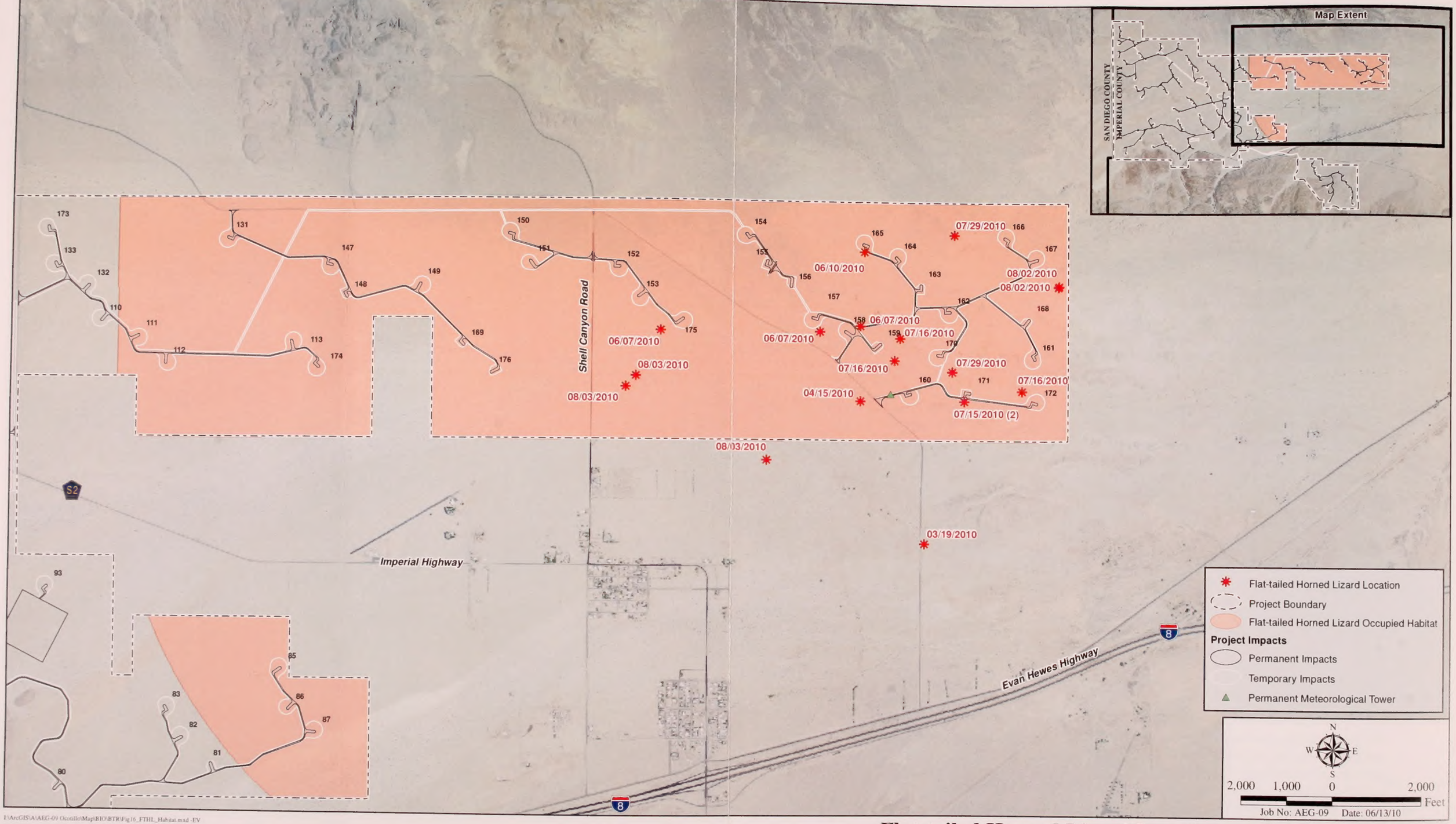


Invasive Plant Population Locations

OCOTILLO WIND ENERGY PROJECT

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Figure 16



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Flat-tailed Horned Lizard Locations and Occupied Habitat

OCOTILLO WIND ENERGY PROJECT

HELIX Environmental Planning

Figure 17

implementation of a Worker Education Awareness Program [WEAP]) and MM 8 (use of shielded directional lighting that is pointed downward).

Avian predators of the FTHL, such as common raven (*Corvus corax*), loggerhead shrike (*Lanius ludovicianus*), and American kestrel (*Falco sparverius*), and non-avian predators, such as round-tailed ground squirrel (*Spermophilus tereticaudus*), may be drawn to the OWEF due to the increase in food sources (such as garbage cans) and perching/roosting areas (such as the fences and power poles associated with the substation/switchyard, permanent meteorological tower, and the O&M building). These species, particularly common ravens and round-tailed ground squirrels, would be attracted to food waste during construction if it is not properly contained. Increases in predator species may indirectly impact FTHL if predation on FTHL increases. Impacts associated with predators are considered significant and would be reduced to a level below significance by implementation of MM 2 (biological monitoring by a FTHL-experienced biologist and preparation and implementation of a WEAP) and MM 13 (implementation of a Raven Control Plan).

The proposed project would indirectly affect FTHL if it resulted in the introduction of invasive weeds that create vegetative cover that is too dense for FTHL to navigate. As mentioned above, disturbance of soil and vegetation over a total of 137.4 acres of occupied FTHL habitat on the proposed OWEF site will take place during construction. This disturbance can encourage invasive weeds to encroach into the habitat from areas outside the site. In addition, construction vehicles and equipment can transport invasive weed seeds and vegetative parts, within their tires and other various parts under the vehicles, to the proposed OWEF site from other regions. Invasive weed species have the potential to out-compete native species and change the overall quality of the habitat. Habitat degradation could occur through the spread of existing invasive weed species within the area of the proposed OWEF site (e.g., Saharan mustard [*Brassica tournefortii*]) or through the introduction of new invasive weed species to the area of the proposed OWEF site. Impacts associated with introduction or spread of invasive weed species are considered significant and would be reduced to a level below significance by the implementation of MM 2 (biological monitoring by a FTHL-experienced biologist and preparation and implementation of a WEAP), MM 4 (revegetate temporarily disturbed areas), and MM 6 (prepare and implement an Integrated Weed Management Plan).

4.4.1.2 Barefoot Banded Gecko

The barefoot banded gecko was not detected despite exhaustive searches and is assumed to be absent within the 2010 survey area (Dugan 2011). However, redesign of the access roads and underground collection system in Site 2 includes several areas that fall outside the 2010 barefoot banded gecko survey area and are considered very low quality habitat for the species (Figure 6).

If barefoot banded gecko is present within the portions of the proposed project that have not been surveyed, construction activities have the potential to impact the species. Potential construction impacts could include direct crushing of individual geckos during vegetation

clearing and grading, removal of gecko habitat, and indirect disturbance to the gecko as a result of noise, vibration, night lighting, invasive weed species, and fugitive dust, similar to the indirect impacts described above for FTHL. These potential impacts are considered significant.

The portions of the proposed project that fall outside of the 2010 barefoot banded gecko survey area will be surveyed for the species in 2011, in accordance with MM 16. If the species is determined to be present, implementation of the following Mitigation Measures (MMs) are required and would reduce the impacts to a level below significance: MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring, inspect all potential wildlife pitfalls [e.g., trenches, bores, other excavations], and remove wildlife as necessary), MM 4 (revegetate temporarily disturbed areas), MM 6 (prepare and implement an Integrated Weed Management Plan), MM 8 (use of shielded directional lighting that is pointed downward), MM 9 (15 mile-per-hour speed limit along access roads), and MM 16 (obtain a 2081 Incidental Take Permit for barefoot banded gecko and comply with the permit conditions).

4.4.1.3 Rosy Boa

The rosy boa was observed in rocky habitat in the southwest portion of Site 1 during surveys for the barefoot banded gecko. This species occurs in desert, arid scrub, brushland, and rocky chaparral-covered foothills - particularly where moisture is available, which may limit its distribution and abundance on the site. Potential impacts to this species would be similar to those for the barefoot banded gecko, are considered significant, and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring, inspect all potential wildlife pitfalls [e.g., trenches, bores, other excavations], and remove wildlife as necessary), MM 4 (revegetate temporarily disturbed areas), MM 6 (prepare and implement an Integrated Weed Management Plan), MM 8 (use of shielded directional lighting that is pointed downward), and MM 9 (15 mile-per-hour speed limit along access roads).

4.4.1.4 Burrowing Owl

Direct Impacts

Direct effects to burrowing owls from construction can include destruction of burrows/burrow entrances, mortality, and habitat loss surrounding occupied burrows. "Occupied" is defined as a burrow that shows sign of burrowing owl occupancy (e.g., an owl, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance) within the last 3 years (CBOC 1993). Construction activities such as grading, the movement of construction vehicles or heavy equipment, and the installation of OWEF facility components may result in the direct mortality through crushing of adults, young, or eggs within burrows or entrapment of/injury to owls within burrows if burrow entrances become blocked. Throughout the proposed OWEF site, 16 occupied burrows were observed; one of those would be directly impacted by proposed

project construction, and 3 more occur within 160 feet of proposed project construction and would also be considered directly impacted (Figure 8), in accordance with the guidance provided in the CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995). Portions of the proposed project fall outside of the 2010 burrowing owl survey area will be surveyed for the species during the 2011 breeding season, in accordance with MM 17. Impacts associated with destruction of burrows/burrow entrances and mortality of owls are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 20 (conduct pre-construction burrowing owl surveys, avoidance of occupied burrows, and passive relocation if avoidance is not possible), and MM 23 (vegetation clearing outside of the general avian breeding season).

The proposed project would result in a loss of 26 acres of burrowing owl foraging habitat resulting from construction activities occurring within 300 feet occupied burrows (6.5 acres of habitat would be lost at each of the 4 occupied burrows in accordance with CDFG [1995]). To offset the loss of foraging and burrow habitat on the OWEF site, compensation would be required through off-site acquisition and permanently protection of 26 acres of occupied foraging habitat, on-site revegetation of temporary impacted areas and/or on-site restoration/enhancement of disturbed habitat, in accordance with MM 19. If additional occupied burrows are documented within 160 feet of the OWEF facility components during the 2011 breeding season surveys, an additional 6.5 acres of off-site compensation would be required for each burrow considered impacted. If off-site acquisition and protection is pursued, the acquisition of occupied owl foraging habitat may overlap with the off-site mitigation required for sensitive vegetation communities (MM 3), if approved by the BLM and Wildlife Agencies. Furthermore, impacts to burrowing owl foraging habitat are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 4 (revegetate temporarily disturbed areas), MM 6 (prepare and implement an Integrated Weed Management Plan).

Indirect Impacts

Potential indirect effects during construction include night lighting, construction noise, and degradation of foraging habitat. Construction will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. Night lighting has the potential to disrupt burrowing owl breeding/nesting behavior if it would be placed in close proximity to occupied burrows. Any night lighting to be used during construction will be directed toward the interior of the disturbance area or at the specific location being constructed in order to minimize adverse effects to owls and other wildlife species. Impacts associated with night lighting are considered significant and would be reduced to a level below significance by implementation of MM 2 (conduct biological monitoring during construction) and MM 8 (use of shielded directional lighting that is pointed downward).

Construction noise could impact breeding behavior or reproductive success. In accordance with CDFG (1995), avoidance is the preferred method for dealing with potential project impacts to burrowing owls. To avoid and minimize potential noise impacts on burrowing owls, no construction activities would occur within 160 feet of occupied burrows during the non-breeding season (September 1 – January 31) and no construction activities would occur within 250 feet of occupied burrows during the breeding season (February 1 – August 31), in accordance with MM 20.

The proposed project would indirectly affect burrowing owls if it resulted in the introduction or spread of invasive weed species that result in changes in prey abundance or species assemblages. Soil disturbance during construction can encourage invasive weeds to encroach into the habitat from areas outside the site and weed seed can be introduced to the site if construction vehicles and equipment entering the site is not cleaned properly. Invasive weed species have the potential to out-compete native species and change the overall quality of the habitat. Impacts associated with introduction or spread of invasive weed species are considered significant and would be reduced to a level below significance by implementation of MM 2 (conduct biological monitoring during construction), MM 4 (revegetate temporarily disturbed areas), MM 6 (prepare and implement an Integrated Weed Management Plan).

4.4.1.5 Golden Eagle

The proposed project occurs in the distribution range of golden eagles and is approximate to 5 nesting territories (2 of the 5 territories were determined to be active during the 2010 golden eagle nest surveys; WRI 2011). The closest active nest is approximately 3.2 miles to the north of the proposed OWEF, in the Coyote Mountains. The other active nest is approximately 6 miles to the southwest of the proposed OWEF, near Table Mountain. The number of active territorial pairs of golden eagles in the area surveyed could be higher than the 2 identified in 2010 due to ongoing drought in Southern California (WRI 2011). However, even the closest inactive nest was greater than 2 miles north of the proposed OWEF in the Coyote Mountains. Construction of the proposed project would not result in direct or indirect impacts to golden eagle nests because of the distance between nest sites and the proposed project.

Construction of the proposed project would permanently remove approximately 181.0 acres of vegetation that could be used by the golden eagle as foraging habitat. The proposed project's temporary impacts to approximately 483.9 acres of vegetation would be considered a short-term impact because those areas would be revegetated following construction. Golden eagle observations at the proposed OWEF site were low over the nearly 2 years of raptor migration counts (0.01 observation/hr during fall 2009 migration counts, none during spring 2010 migration counts, and 0.02 observation/hr during fall 2010 migration counts). These observations suggest low use of the proposed OWEF site for foraging, especially when compared with other projects. Impacts to golden eagle foraging habitat are not considered significant because of the amount of foraging habitat on site and adjacent to the site; impacts to foraging habitat would be minimized by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2

(conduct biological monitoring during construction), MM 3 (provide habitat compensation/restoration for permanent impacts to sensitive vegetation communities), MM 4 (revegetate temporarily disturbed areas), and MM 21 (develop and implement an Eagle Conservation Plan).

Potential indirect impacts to golden eagle foraging habitat during construction include night lighting and degradation of habitat. Construction will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the disturbance area or at the specific location being constructed in order to minimize adverse effects to owls and other wildlife species. Impacts associated with night lighting would be mitigated by the implementation of MM 2 (conduct biological monitoring during construction) and MM 8 (use of shielded directional lighting that is pointed downward).

Degradation of habitat would indirectly affect golden eagle foraging if it resulted in the introduction or spread of invasive weed species or changes in prey abundance or species assemblages, introduction of invasive weed species as described in the Indirect Impacts section for the burrowing owl. Impacts associated with introduction or spread of invasive weed species would be mitigated by the implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 4 (revegetate temporarily disturbed areas), MM 6 (prepare and implement an Integrated Weed Management Plan).

4.4.1.6 Nesting Birds

The proposed project could result in direct and indirect impacts to nesting bird species protected under California Fish and Game Code sections 3503.5 and 3511 and the Migratory Bird Treaty Act. Construction activities, primarily though removal of vegetation, could cause destruction or abandonment of active nests or the mortality of adults, young, or eggs. Several special status bird species are known or suspected to nest on or in close proximity to the proposed OWEF, including burrowing owl, prairie falcon, loggerhead shrike, and Le Conte's thrasher. Impacts to burrowing owl nesting and the associated mitigation requirements are discussed in Section 4.4.1.4 above. Direct impacts to nesting bird species, including special status species, are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 22 (develop and implement an Avian and Bat Protection Plan), and MM 23 (vegetation clearing outside of the general avian breeding season or conduct pre-construction nesting bird surveys and incorporate a 100-foot nest buffer around active nests).

Potential indirect effects to nesting birds during construction include night lighting and construction noise, as described in the Indirect Impacts section for burrowing owl (Section 4.4.1.4). Impacts associated with night lighting and construction noise are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent

practicable), MM 2 (conduct biological monitoring during construction) MM 8 (use of shielded directional lighting that is pointed downward), and MM 23 (vegetation clearing outside of the general avian breeding season or conduct pre-construction nesting bird surveys and incorporate a 100-foot nest buffer around active nests).

4.4.1.7 Bats

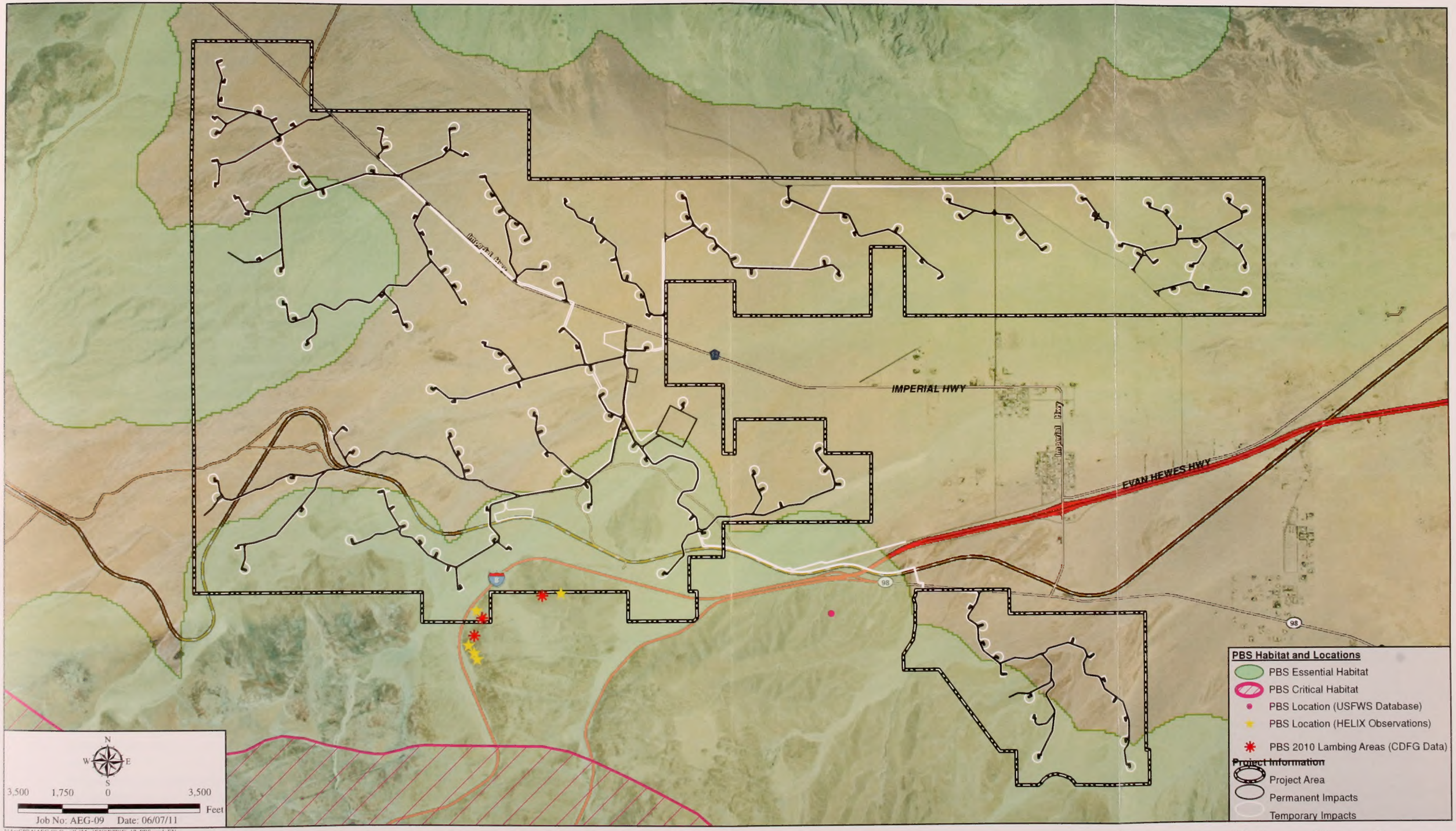
No bat roosts are known to occur within or adjacent to the proposed project; therefore, impacts to bat roosts are not anticipated. The proposed project could result in indirect impacts to bat species if construction activities disrupt nighttime foraging habits. Bat use of the proposed OWEF site is remarkably low. More than 70 percent of the surveys conducted for the proposed OWEF failed to record a single bat during the night, and bat activity was generally restricted to the perimeter of the proposed OWEF site, with infrequent observations of bats. These results are most likely due to a lack of any form of standing water on the site, and therefore, a lack of abundant invertebrate prey that is associated with standing water. Therefore, construction activities would not affect the bat prey base. If night lighting is used during construction, it is expected that insects would be attracted to the lighting, which could in turn attract bats to the construction area. Use of night lighting could therefore have a positive effect on bat species if the lighting attracts and concentrates prey species. Bats that might forage around nighttime construction lighting are not expected to be adversely affected. Even so, implementation of MM 8 (minimize, shield, and direct night lighting) and MM 22 (develop and implement an Avian and Bat Protection Plan) are required to minimize construction impacts.

4.4.1.8 Peninsular Bighorn Sheep

The 2011 HELIX/Western Tracking Institute PBS study conducted to date indicates that with the exception of the portion of the I-8 Island in the southwest portion of Site 1 (where OWEF features are not proposed), the proposed OWEF is not currently occupied (Figure 18). No recent sign has been found in the PBS study areas except for the I-8 Island and along the portion of Devil's Canyon that lies to the south of Site 1 (Figure 18).

Direct Impacts

There would be no direct impacts to PBS designated critical habitat, occupied habitat in the I-8 Island, or on any PBS watering holes or guzzlers (man-made catch basins designed to enhance natural waters) because none exist on the proposed OWEF site. The potential direct effects of the proposed project include impacts to USFWS Essential Habitat, mortality of PBS as a result of collision with construction equipment, elimination of access to foraging areas, disruption of reproduction or lambing activities, prevention of dispersal or intermountain movements.



Peninsular Bighorn Sheep/Impacts

OCOTILLO WIND ENERGY FACILITY

HELIX Environmental Planning

Figure 18

Habitat Impacts

The proposed project would directly impact 173.4 acres of USFWS Essential Habitat (129.5 acres of temporary impacts and 43.9 acres of permanent impacts) as a result of construction grading, trenching, and vegetation removal on the OWEF site. A total of 3,691.9 acres of USFWS Essential Habitat occurs on the proposed OWEF site. Impacts to PBS Essential Habitat are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 4 (revegetate temporarily disturbed areas), MM 24 (revegetate temporary impacts to PBS Essential Habitat), and MM 25 (provide compensation for permanent impacts to PBS Essential Habitat).

Collision with Construction Equipment

Construction equipment has the potential to impact PBS as a result of colliding with PBS resulting in injury or death if PBS are present in the project work areas. The potential effect of colliding with construction equipment are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 9 (15 mile-per-hour speed limit along access roads), MM 26 (prepare a Bighorn Sheep Mitigation and Monitoring Plan), and MM 27 (retain a Bighorn Sheep Monitor to monitor construction activities in Essential Habitat and implement a 1,000-foot buffer if PBS are observed on site).

Access to Foraging Areas

The proposed project has the potential to discourage PBS from foraging in the desert flats and desert washes within the USFWS Essential Habitat if noise, human activity, and/or equipment disturbance during construction prevents PBS from accessing foraging areas. The proposed project would be constructed in 2 phases and approximately 5 to 10 WTGs can be erected each week, which means not all of the proposed project's site features would be constructed simultaneously. As such, PBS would have access to thousands of acres of other foraging areas in the Action Area during construction at any one particular WTG location. Construction noise and activities that result in avoidance of foraging areas would affect PBS are considered significant impacts and would be reduced to a level below significance by implementation of MM 26 (prepare a Bighorn Sheep Mitigation and Monitoring Plan) and MM 27 (retain a Bighorn Sheep Monitor to monitor construction activities in Essential Habitat and implement a 1,000-foot buffer if PBS are observed on site).

In addition, an approximately 50-foot tall biological monitoring observation tower would be located in the central portion of Site 1 (referred to by the project proponent as the Advanced Biological Operations Command and Control Center [ABOCC]) and would include a platform with a 360 degree view of the area. A high resolution video camera and an advanced radar system (Merlin Avian Radar System) would be mounted on top of

the observation tower. The radar system would include vertical and horizontal Doppler radar and tracking software that would link radar detections to a video monitoring system. The observation tower would also include an air-conditioned central monitoring control room equipped with radar monitors, video monitors and controls, and radio telemetry data monitors to allow for real-time monitoring. Once built, the observation tower would be used by the Designated Biologist, Biological Monitors, and Bighorn Sheep Monitor to monitor for PBS on the OWEF site, as required by MM 27.

Reproduction/Lambing Activities

Project construction activities could significantly affect PBS if the activities result in disturbance to reproduction/lambing areas. The OWEF project has been designed to place WTGs, access roads, and other proposed features outside of potential reproduction/lambing areas (i.e., steep rocky areas). For the proposed project, 8 WTGs (WTGs 22-28 and WTG 77) are proposed within 3,900 feet of the known lambing sites in the I-8 Island (Figure 18). To avoid impacts to the lambing sites, construction of WTGs within 3,900 feet of PBS lambing sites will be avoided from January 1 through June 30 (i.e., the PBS lambing season) when there is direct line of site between the lambing site and the construction area, in accordance with MM 28. Additionally, site preparation and use of the rail unloading area shall be avoided during the lambing season per MM 28.

Noise from construction is not expected to affect PBS reproduction or lambing activities because of the high existing noise levels from traffic on I-8. HELIX collected preliminary noise measurements within the I-8 Island in March 2011 to determine the ambient noise levels from vehicle traffic. Ambient noise levels in the habitat directly adjacent to the westbound lanes of I-8 ranged from 60-80 dB(A), and ambient noise levels further from the westbound lanes of I-8 averaged between 50-55 dB(A). Construction activities are not expected to result in increases in noise levels at the known PBS lambing sites for 3 main reasons: (1) there will be a seasonal restriction (January through June) on all construction activities within 1,200 meters (approximately 3,900 feet) of lambing sites as required by MM 28; (2) all other construction activities would be at least 0.5 mile from the known lambing areas, and the noise would dissipate across the landscape; and (3) there is no suitable lambing habitat on the proposed OWEF site; lambing areas are typically located in rugged, secure locations on rocky hillsides to allow ewes to keep lambs protected, and these areas are found outside the proposed OWEF site.

Intermountain Connectivity

PBS are closely associated with mountainous habitat and often are hesitant to venture far from escape terrain (Geist 1971 as cited in USFWS 2000). The proposed project would not directly affect PBS intermountain movement for the following reasons: (1) the known movement area between Carrizo Gorge and the Coyote Mountains is along Sweeney Pass (approximately 6 miles northwest of Site 1); (2) the known movement corridor between Carrizo Gorge and the I-8 Island is approximately 2 miles to the south of the proposed OWEF site; (3) the proposed project was redesigned to remove proposed OWEF features originally designed in the southwest portion of Site 1 and to move proposed OWEF

features further from Devil's Canyon; and (4) the proposed OWEF site will not be fenced, and post-construction human activity levels are expected to be similar to the pre-construction activity levels due to OHV use, Border Patrol use, and recreational use. The proposed project would not result in additional habitat fragmentation of suitable PBS habitat because the proposed OWEF site is not currently occupied. In addition, human activity levels during construction adjacent to PBS-occupied habitat are expected to be similar to pre-construction conditions.

Indirect Impacts

The proposed project would indirectly affect PBS if it resulted in behavioral responses due to noise, human activities, or habitat degradation primarily due to the introduction of invasive weed species.

Behavioral Responses

The proposed project would indirectly affect PBS if construction activities result in behavioral changes. A number of studies have been conducted to evaluate bighorn sheep responses to human activities (e.g., Hicks and Elder 1979; Keller and Bender 2007; Papouchis et al. 2001) and generally conclude that bighorn sheep increase their distance to humans, especially when they are approached, but the effects of disturbance are temporary. The proposed project would not be constructed in occupied PBS habitat, would not impact or block access to watering holes, and does not include new access roads into known occupied PBS habitat. However, human activity, noise, and use of night lighting have the potential to significantly indirectly impact PBS. To minimize potential PBS behavioral responses to construction activities, the following mitigation measures will be implemented: MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 9 (15 mile-per-hour speed limit along access roads), MM 26 (prepare a Bighorn Sheep Mitigation and Monitoring Plan), MM 27 (retain a Bighorn Sheep Monitor to monitor construction activities in Essential Habitat and implement a 1,000-foot buffer if PBS are observed on site), and MM 29 (collect data on PBS movements during the construction phase). Impacts associated with night lighting would be mitigated by the implementation of MM 2 (conduct biological monitoring during construction) and MM 8 (use of shielded directional lighting that is pointed downward).

Habitat Degradation

The proposed project would result in habitat degradation primarily due to the introduction of invasive weed species as described in the Indirect Impacts section for the FTHL. Implementation of MM 6, which requires the preparation and implementation of an Integrated Weed Management Plan, would reduce this potential impact during construction and for the life of the proposed OWEF.

4.4.1.9 American Badger

Construction of the proposed project has the potential to injure or kill American badgers by crushing them in their dens or crushing den entrances with construction equipment, which would prevent badgers from escaping, similar to the direct impacts described for burrowing owl above. Impacts associated with destruction of burrows/burrow entrances and mortality of owls are considered significant and would be reduced to a level below significance by implementation of MM 1 (minimize construction-related impacts to the maximum extent practicable), MM 2 (conduct biological monitoring during construction), MM 8 (use of shielded directional lighting that is pointed downward), MM 9 (15 mile-per-hour speed limit along access roads), and MM 32 (pre-construction survey for the American badger, avoidance of active dens, and/or badger relocation).

4.4.2 Operation and Maintenance

4.4.2.1 Flat-Tailed Horned Lizard

General O&M activities that would be conducted such as visual inspections, oil changes, and gearbox lubrication will result in regular truck traffic on access roads throughout the year, which may result in direct mortality or injury to individual FTHL. In addition, grading of access roads will occur as needed (but will be scheduled to least disturb sensitive wildlife), in accordance with MM 2. FTHL injury or mortality could also potentially occur due to weed abatement activities, including application of chemicals or mechanical methods. These potential impacts are considered significant and would be reduced to a level below significance by implementation of MM 9 (speed limit of 15 miles per hour on access roads in occupied FTHL habitat, biological monitoring [relocation of FTHL if necessary] for O&M off of access roads) and MM 15 (submit annual FTHL Status Report).

As with construction, avian predators of the FTHL may be drawn to the OWEF due to the increase in food sources such as garbage cans and perching areas such as the fences surrounding the substation/switchyard and the O&M building. A potential increase in avian predators may indirectly affect FTHL. Impacts associated with predators during O&M are considered significant and would be reduced to a level below significance by implementation of MM 2 (conduct biological monitoring and implement and ensure compliance with a WEAP), MM 13 (implement the Raven Control Plan), and MM 15 (submit annual FTHL Status Report) are required to minimize this potential impact to FTHL during O&M. In addition, an indirect impact to FTHL would occur if the number of avian and non-avian predators increases as a result of higher densities of perennial shrub species (Grant 2005). Increases in perennial shrub species can occur if considerable amount of water are applied during the construction phase or O&M/revegetation phase. However, only the minimal amount of water needed for dust control would be applied during the construction phase in accordance with MM 7 and only the minimum amount of water needed for revegetation of temporary impact areas would be applied during the O&M phase, in accordance with MM 4.

As with construction, increases in invasive plant species and use of night lighting in occupied FTHL habitat would be indirect impacts to FTHL. Impacts associated with invasive plant species during O&M are considered significant and would be reduced to a level below significance by implementation of MM 6 (implement the Integrated Weed Management Plan for the life of the project) and MM 8 (minimize night lighting during O&M).

4.4.2.2 Barefoot Banded Gecko

As described above, the barefoot banded gecko is currently considered absent from the OWEF site, but there are several portions of site that have not yet been surveyed for the species and are considered very low quality habitat for the gecko (Figure 6). The portions of the OWEF site that have not yet been surveyed for the species will be surveyed in 2011 prior to the start of construction. If barefoot banded gecko is determined to be absent, no mitigation during O&M would be required for this species. If barefoot banded gecko is determined to be present, O&M activities have the potential to directly impact the species through crushing of individuals resulting from vegetation management or road grading and indirectly impact the species as a result of noise, vibration, night lighting, introduction or spread of invasive weed species, and fugitive dust, as described above for the construction impacts on barefoot banded gecko. Direct impacts to barefoot banded gecko during O&M are considered significant and would be reduced to a level below significance by implementation of MM 2 (implement and ensure compliance with a WEAP, including scheduling O&M to least disturb sensitive wildlife) and MM 16 (comply with the conditions of the 2081 Incidental Take Permit for the species [if necessary]). Indirect impacts to barefoot banded gecko during O&M are considered significant and would be reduced to a level below significance by implementation of MM 6 (implement the Integrated Weed Management Plan for the life of the project), MM 8 (minimize night lighting during O&M), MM 14 (measures to reduce FTHL mortality, including requiring vehicles to remain on designated maintenance roads), and MM 16 (comply with the conditions of the 2081 Incidental Take Permit for the species [if necessary]).

4.4.2.3 Rosy Boa

Similar to the barefoot banded gecko, potential O&M impacts could include direct impacts such as crushing/killing of individuals and indirect disturbance as a result of noise, vibration, night lighting, introduction or spread of invasive weed species, and fugitive dust. Direct impacts to rosy boa during O&M would be minimized through implementation of MM 2 (implement and ensure compliance with a WEAP, including scheduling O&M to least disturb sensitive wildlife). Indirect impacts to rosy boa during O&M are considered significant and would be reduced to a level below significance by implementation of MM 6 (implement the Integrated Weed Management Plan for the life of the project), MM 8 (minimize night lighting during O&M), MM 14 (measures to reduce wildlife mortality, including requiring vehicles to remain on designated maintenance roads).

4.4.2.4 Burrowing Owl

O&M activities have the potential to affect burrowing owls if activities cause destruction of burrows or burrow entrances. Regular O&M activities, such as driving on access roads to make periodic inspections of WTGs, gear box inspections, and lubrication, are not expected to affect because activities will remain on permanently maintained access roads, crane pads, and permanent work areas. Implementation of MM 2 (implement and ensure compliance with a WEAP) and MM 9 (limiting speed limits on access roads) would minimize impacts on burrowing owls from these types of O&M activities. Other O&M activities, such as vegetation management or regrading access roads that result in disturbance beyond the approved permanent footprint, have the potential to affect burrowing owls if activities cause destruction of burrows or burrow entrances, as described above for the construction phase of the project. These potential impacts to burrowing owls during O&M are considered significant and would be reduced to a level below significance by the requirement to conduct a pre-construction burrowing owl survey in accordance with MM 20 if O&M activities have the potential to disturb habitat outside of the approved permanent project footprint. To further reduce this potential impact, MM 2 requires preparation of a WEAP, which includes actions and reporting procedures to be used if nesting birds are encountered and requires annual reporting to ensure compliance with the WEAP.

As with construction, increases in invasive plant species and use of night lighting would be significant indirect impacts to burrowing owl. Impacts associated with invasive plant species during O&M would be minimized through implementation of MM 6 (implement the Integrated Weed Management Plan for the life of the project). Impacts associated with night lighting during O&M would be minimized through implementation of MM 8 (minimize night lighting during O&M).

The risk of collision of the burrowing owl with the WTGs is discussed in the Avian and Bat Collision Risk section below.

4.4.2.5 Golden Eagle

As with construction, O&M would not result in direct or indirect impacts to golden eagle nest sites because the nearest nest site is a minimum of 2 miles from the proposed OWEF site. O&M activities have the potential to remove golden eagle foraging habitat if regrading of roads or other O&M activities result in minor amounts of vegetation being removed adjacent to the permanent project footprint. If areas need to be regraded, they would be revegetated in accordance with MM 4. Therefore, O&M activities are not expected to significantly impact golden eagle foraging on the OWEF site.

The risk of collision of the golden eagle with the WTGs is discussed in the Avian and Bat Collision Risk section below.

4.4.2.6 Nesting Birds

As with construction, O&M activities could result in direct and indirect impacts to nesting bird species protected under the California Fish and Game Code and Migratory Bird Treaty Act. Direct impacts to nesting birds could occur as a result of vegetation management or regrading of access roads, which could cause destruction or abandonment of active nests or the mortality of adults, young, or eggs. Direct impacts to nesting bird species are considered significant and would be reduced to a level below significance by implementation of MM 23 (vegetation clearing outside of the general avian breeding season or conduct pre-construction nesting bird surveys and incorporate a 100-foot nest buffer around active nests) and MM 22 (prepare and implement an Avian and Bat Protection Plan). To further reduce this potential impact, MM 2 requires preparation of a WEAP, which includes actions and reporting procedures to be used if nesting birds are encountered and requires annual reporting to ensure compliance with the WEAP.

As with construction, increases in invasive plant species and use of night lighting would be indirect impacts to nesting bird species. Impacts associated with invasive plant species during O&M are considered significant and would be reduced to a level below significance by implementation of MM 6 (implement the Integrated Weed Management Plan for the life of the project). Impacts associated with night lighting during O&M are considered significant and would be reduced to a level below significance by implementation of MM 8 (minimize night lighting during O&M).

4.4.2.7 Bats

No bat roosts are known to occur within or adjacent to the proposed project; therefore, impacts to bat roosts during O&M activities are not anticipated. As described in Section 3.2.3.1, bat use of the OWEF site was determined to be very low during surveys conducted in 2010, likely as a result of a lack of water sources on and adjacent to the site. Nighttime foraging habitats are not expected to be affected by O&M of the OWEF site because of the low use of the site. However, a minimal amount of night lighting is proposed for the site including at the O&M building and on top of some of the WTGs, which has the potential to attract and concentrate invertebrate prey items. Implementation of MM 8 would reduce the potential impact on bat species because it requires night lighting to be minimized, shielded, and directed down. Potential O&M impacts on bat species would be further minimized by implementation of MM 22 (prepare and implement an Avian and Bat Protection Plan). Even with implementation of these Mitigation Measures, bats may be still attracted to areas where night lighting are used and this would increase their risk of collision with WTGs. The risk of collision of bats with the WTGs is discussed in the Avian and Bat Collision Risk section below.

4.4.2.8 Avian and Bat Collision Risk

Operation of the OWEF site would impact avian and bat species as a result of collisions with project features. Resident and migratory bird and bat species are at risk of collision with the 155 WTGs, 4 permanent (unguyed) meteorological towers, and the overhead

transmission lines, which are limited to an approximately 600-foot-long section that would connect the switchyard to the new Sunrise Powerlink 500 kV transmission line and an approximately 150-foot-long segment that would connect the proposed switchyard and proposed substation.

In accordance with Wind Turbine Guidelines Advisory Committee's (WTGAC's) recommendations to USFWS for wind projects in general, collision risk for the OWEF is defined as the likelihood that adverse impacts will occur to individuals or populations of species of concern as a result of wind energy development and operation (WTGAC 2010). A weight-of-evidence approach is often used to analyze risk because relatively few methods are available for direct estimation of risk (Anderson et al. 1999 as cited in WTGAC 2010). The WTGAC also indicates that "for most populations, risk cannot easily be reduced to a strict metric, especially in the absence of population viability models for most species. Consequently, estimating the quantitative risk to populations is usually beyond the scope of project studies due to the difficulties in evaluating these metrics, and therefore risk assessment will be qualitative" (WTGAC 2010). Use data for proposed wind sites is often compared to use data of other wind sites to evaluate collision risk. The collision risk analysis presented below incorporates the quantitative data collected during 3 seasons of raptor migration count studies, a full year of avian point count studies, and 4 seasons of bat survey data on the OWEF site. Avian and bat use, observed flight heights, and species behaviors were incorporated into the qualitative collision risk assessment below.

As noted in Section 3.2.3.1, three seasons of raptor migration counts have indicated that raptor use of the site is low (an average of approximately 0.496 observations/hour). Raptor use on the OWEF is low when compared to similar studies conducted for other wind projects (HELIX 2010c). Red-tailed hawk and turkey vulture accounted for nearly 75 percent of the observations made during the 3 seasons of raptor counts (see Table 3). Many of the red-tailed hawk observations made were likely repeat observations of the same individual or individuals. These 2 species were also commonly observed within the proposed rotor swept area (RSA) range of approximately 100-450 feet above ground level. Based solely on use, red-tailed hawk and turkey vulture would have the greatest risk of collision.

Resident raptor species (red-tailed hawk, prairie falcon, and American kestrel) use the site regularly for foraging and perching but do not occur in high densities. Migratory raptor species observed on site include turkey vulture, osprey, Cooper's hawk, sharp-shinned hawk, merlin, ferruginous hawk, and Swainson's hawk. With the exception of turkey vultures, migratory raptor species were uncommon during the fall and spring. The migratory raptor species listed above (excluding turkey vultures) were observed infrequently during the study period; 10 or fewer observations were made of each of the following species during the 3 seasons of raptor counts: osprey, Cooper's hawk, sharp-shinned hawk, merlin, and ferruginous hawk. Based solely on behavioral use of the site, resident raptor species would be at greater risk to collision than migratory raptor species because they were more frequently observed foraging over the site, including in the proposed RSA.

The following sections analyze collision risk for golden eagles, other special status raptor species, other avian species, and bats.

Golden eagle

The risk of collision of the golden eagle with the WTGs would occur when eagles use the proposed OWEF site for foraging or during migration. The greatest risk of collision for golden eagles, as with other raptor species, is during foraging because eagles are focused on prey items and may not see the spinning WTG blades. Golden eagle use of the proposed OWEF site for foraging is low, however. The duration of each golden eagle observation (i.e., the amount of time that the eagles were documented on or immediately adjacent to the site) ranged from one minute to one hour, with most observations lasting from 2 to 10 minutes. The results of the extensive observation hours on the proposed OWEF site indicate that the proposed OWEF site is occasionally used by eagles for foraging, but it was not part of a regularly used foraging area in fall or spring. The foraging behavior observed on site included time flying within the proposed RSA. Several of the golden eagle observations were of eagles in directional flight over the site at an elevation of 1,000 feet or more and these individuals are presumed to be migrating individuals. Because golden eagle use of the proposed OWEF site is low (0.008 observations/hour made over the 3 seasons of raptor counts), the collision risk is considered low.

The potential for golden eagle to collide with project features is considered a significant impact and would be reduced to a level below significance by implementation of MM 21 (develop and implement an Eagle Conservation Plan), MM 33 (design transmission towers and lines to conform with Avian Power Line Interaction Committee standards), MM 34 (conduct post-construction bird and bat species mortality monitoring), and MM 35 (prepare and implement a Wildlife Mortality Monitoring Program).

To further reduce the collision risk impact to golden eagles, the Proponent has proposed staffing a biologist full time during daylight hours for the first 3 years of operation of the OWEF project in the proposed ABOCC observation tower, in accordance with the details provided in the draft Eagle Conservation Plan prepared by OE LLC. The draft Eagle Conservation Plan was submitted to the USFWS, CDFG, and BLM for review in March 2011. The primary purpose of staffing a biologist at the ABOCC observation tower would be to detect golden eagles and PBS. If eagles are detected during operations, the biologist would have the ability to shut down the WTGs in the area where eagles are detected until the biologist determines the eagle has left the project site. The biologist would have complete access to the Merlin Avian Radar System and high-resolution video camera system.

Other Special Status Raptor Species

Cooper's hawk does not commonly occur within the proposed OWEF site, and the 6 observations likely represent migratory birds passing through the proposed OWEF area. Each observation was a single individual and 4 of the 6 observations included flight

heights in the proposed RSA. Although foraging behavior was not observed, it is expected that the species could use the site for foraging during migration periods, which would put it at risk for collision. Wintering and resident Cooper's hawks are typically found in riparian habitats, which are lacking within the proposed OWEF site. Cooper's hawk use of the proposed OWEF site was low (0.003 observations/hour made over the 3 seasons of raptor counts); therefore, overall collision risk for this species is low.
Like the Cooper's hawk, sharp-shinned hawk does not commonly occur within the proposed OWEF site, and the 4 observations likely represent migratory birds passing through the proposed OWEF site. Each observation was a single individual and all 4 observations included flight heights below the proposed RSA. Although foraging behavior was not observed, it is expected that the species could use the site for foraging during migration periods, which would put it at risk for collision. Both wintering and resident sharp-shinned hawk are typically associated with riparian habitats, which are lacking within the proposed OWEF site. Sharp-shinned hawk use of the proposed OWEF site was low (0.002 observations/hour made over the 3 seasons of raptor counts); therefore, overall collision risk for this species is low.

Ferruginous hawk is an infrequent migrant through the proposed OWEF site and is not a common winter resident. The 4 observations likely represent migratory birds passing through the proposed OWEF site during fall/winter migration. Each observation was a single individual and 3 of the 4 observations included flight heights in the proposed RSA. Although foraging behavior was not observed, it is expected that the species could use the site for foraging during migration periods, which would put it at risk for collision. Wintering ferruginous hawks are more commonly observed in the agricultural complexes east of the proposed OWEF site where rodent populations are typically higher. Ferruginous hawk use of the proposed OWEF site was low (0.002 observations/hour made over the 3 seasons of raptor counts); therefore, overall collision risk for this species is low.

Swainson's hawk was observed infrequently during the fall and spring migration periods for the species (a total of 20 observations were made over 3 seasons of raptor counts). The proposed OWEF site does not appear to be part of the species' fall or spring migration route. With the exception of a group of 14 Swainson's hawks flying at a flight height of 2,000 feet above ground level on October 27, 2010, the other 6 observations were a single individual. Five of the 6 observations of a single individual included flight height within the proposed RSA. Although foraging behavior was not observed, it is expected that the species could use the site for foraging during migration periods, which would put it at risk for collision. Collision risk for Swainson's hawk is considered low due to the species' low use of the proposed OWEF site during the fall and spring (0.009 observations/hour made over the 3 seasons of raptor counts).

Northern harrier was not frequently observed on the OWEF site (a total of 12 observations were made over 3 seasons of raptor counts). Each observation was a single individual and 4 of the 12 observations included flight heights in the proposed RSA. The species was observed foraging on site, which would put it at risk for collision. Northern harriers prey on a variety of species, specializing in small- to medium-sized mammals

(Johnsguard 1990), which occur throughout the proposed OWEF site. Harriers typically hunt by flying at heights closer to the ground, although they will commonly fly at heights within the RSA. The species' use of the proposed OWEF site was low (0.005 observations/hour made over the 3 seasons of raptor counts); therefore, overall collision risk for this species is low.

Merlin does not commonly occur on the proposed OWEF site, and the 3 observations likely represent migratory birds passing through the proposed OWEF site. Each observation was a single individual and the 3 observations were at flight heights below the proposed RSA. Although foraging behavior was not observed, it is expected that the species could use the site for foraging during migration periods, which would put it at risk for collision. Wintering merlin are not common in southern California. Merlin use of the proposed OWEF site was low (0.001 observations/hour made over the 3 seasons of raptor counts); therefore, overall collision risk for this species is low.

Osprey was not frequently observed on the OWEF site (a total of 7 observations were made over 3 seasons of raptor counts). Each observation was a single individual and 6 of the 7 observations included flight heights in the proposed RSA. This species does not commonly occur in the desert during migration and is not expected to use the proposed OWEF site for hunting due to the lack of water bodies within the proposed OWEF site. The species is commonly observed at the Salton Sea, which is located approximately 30 miles northeast of the proposed OWEF site. Osprey use of the proposed OWEF site is low (0.003 observations/hour made over the 3 seasons of raptor counts); therefore, the collision risk for this species is low.

The single observation of 2 peregrine falcons on the proposed OWEF site suggests that the species is a very rare visitor to the proposed OWEF site. The species' use of the proposed OWEF site is low (0.001 observations/hour made over the 3 seasons of raptor counts) and the species is not expected to forage on site; therefore, the collision risk is low.

The multiple observations (44) of prairie falcons throughout the 3 seasons of raptor counts on the proposed OWEF site suggest that this is a resident species of the Ocotillo area. The habitat in the southwest portion of the proposed OWEF site and adjacent areas to the north and west of the proposed OWEF site contain suitable nesting habitat for the species. A suspected prairie falcon nest location was noted in the I-8 Island (just south of Site 1), but the location was never definitively documented. The prairie falcons that forage within the proposed OWEF site are at a slightly greater risk of collision as compared to many of the other raptor species because their use of the site was greater (0.019 observations/hour made over the 3 seasons of raptor counts) and they were commonly observed flying through the RSA.

As noted in Section 3.2.3.1, three burrowing owls were observed during the Phase I habitat assessment (January 2010), 2 burrowing owl pairs were documented during the 2010 Phase III breeding season surveys (June/July 2010), and 20 burrowing owls were documented during the fall/winter 2010 surveys. Burrowing owls were not observed migrating

through the site during the 2009 or 2010 migration counts. The increased number of burrowing owls observed on the proposed OWEF site in fall is likely due in part to migrating owls from the northern United States other areas of Imperial County. Although they were not observed within the RSA, it is expected that the owls would fly within the RSA during migratory periods. Therefore, burrowing owl is at risk of collision with the turbines.

The potential for special status raptor species to collide with project features is considered a significant impact and would be reduced to a level below significance by implementation of MM 22 (develop and implement an Avian and Bat Protection Plan), MM 33 (design transmission towers and lines to conform with Avian Power Line Interaction Committee standards), MM 34 (conduct post-construction bird and bat species mortality monitoring), and MM 35 (prepare and implement a Wildlife Mortality Monitoring Program).

Other Avian Species

Ninety-six percent of avian observations made during the avian point counts study occurred outside of the rotor swept area (RSA) range of approximately 100-450 feet above ground level (HELIX 2010d). However, there is potential for all recorded avian species to fly within the RSA height range. Given that the proposed OWEF site is not part of a major migratory movement corridor, and the bird abundance is relatively low, overall collision risk for diurnally active avian species is low. It is likely that nocturnal species such as owls (Order Strigiformes), nightjars (Family Caprimulgidae), etc., and species that migrate at night would be at a higher risk of collision as compared to diurnally active species, as the WTGs may not be visible to the species migrating at night.

Three of the special status avian species (non-raptor species) were documented in moderate densities within the proposed OWEF site: Vaux's swifts were common during the fall and spring migratory period; Brewer's sparrow was common during the spring migratory period; and loggerhead shrike was common throughout the year. Each of these species is considered to be at risk of collision because they were commonly observed within the proposed OWEF site, and they were frequently observed flying within the RSA.

The other special status avian species (non-raptor species) observed on the proposed OWEF site were infrequently observed, including long-eared owl, brant, yellow warbler, Le Conte's thrasher, and willow flycatcher. Based on the low use of the site, each of these species is at low risk of collision with the wind turbines.

In addition, turkey vulture and red-tailed hawk, which are not considered special status, are included here because of their prevalence on the proposed OWEF site. Solitary individuals, as well as groups of turkey vultures, were observed flying through the proposed OWEF site during the fall and spring. Turkey vulture is the species with the highest risk of collision because it was the most abundant, and the majority of observations were within the RSA. Turkey vulture use within the proposed OWEF site is low, however, compared to other wind energy sites in the western United States (HELIX

2010d). Red-tailed hawks are year-round residents of the Ocotillo area. Individuals were observed perching on the transmission line towers that cross through the proposed OWEF site and were observed foraging within the proposed OWEF site throughout the year. This species is at high risk for collision because it was commonly observed flying in the RSA.

The potential for special status avian species to collide with project features is considered a significant impact and would be reduced to a level below significance by implementation of MM 22 (develop and implement an Avian and Bat Protection Plan), MM 34 (conduct post-construction bird and bat species mortality monitoring), and MM 35 (prepare and implement a Wildlife Mortality Monitoring Program).

Bats

The results of the long-term echolocation station monitoring for the proposed OWEF indicate very low bat use of the proposed OWEF site, and that most of the bats on the proposed OWEF site fly at lower heights than the RSA (Rahn Conservation Consulting 2011). This is true for all species except the western mastiff bat, which is typically found flying at higher elevations, particularly when commuting through an area. Observations with the thermal imaging camera showed similar results. For all species of bats observed or detected, they were typically found at heights between 1 to 25 meters (approximately 3 to 82 feet) above ground level. Again, the only exception was the western mastiff bat, which was typically observed above 25 meters (approximately 82 feet, and potentially within the RSA).

Only the western mastiff bat is considered at risk to collide with the WTGs in the RSA. Because of its larger body size and its wing structure, the western mastiff bat is unable to drink from water sources less than 30 meters (approximately 98 feet) long. Because there are no water bodies within the proposed OWEF site that could support this species, and foraging potential is limited, this species probably only moves through the proposed OWEF site infrequently in search of suitable habitat. This species was rarely recorded during the bat surveys for the proposed OWEF (Rahn Conservation Consulting 2011). Therefore, the potential for this species to collide with the WTGs in the RSA is low.

The potential for special status avian species to collide with project features is considered a significant impact and would be reduced to a level below significance by implementation of MM 22 (develop and implement an Avian and Bat Protection Plan), MM 34 (conduct post-construction bird and bat species mortality monitoring), and MM 35 (prepare and implement a Wildlife Mortality Monitoring Program).

4.4.2.9 Avian Electrocution Risk

Overhead transmission lines also pose an electrocution risk for avian species, particularly for large, aerial perching birds, such as hawks and eagles, because of their large size, distribution, and behavior (APLIC, 2006). Because raptors and other large aerial perching birds often perch on tall structures that offer views of potential prey, the design of

transmission poles or towers appears to be a major factor in raptor electrocution (APLIC, 2006). Electrocution occurs when a perching bird simultaneously contacts 2 energized phase conductors or an energized conductor and grounded hardware. Electrocution can occur when horizontal separation is less than the wrist-to-wrist (flesh-to-flesh) distance of a bird's wingspan or where vertical separation is less than a bird's length from head-to-foot (APLIC, 2006). Electrocution can also occur when birds perched side-by-side span the distance between these elements (APLIC, 2006). Potential impacts associated with electrocution are considered significant and would be reduced to a level below significance by implementation of MM 22 (prepare and implement an Avian and Bat Protection Plan), MM 33 (design transmission towers and lines to conform with Avian Power Line Interaction Committee standards), MM 34 (conduct post-construction bird and bat species mortality monitoring), and MM 35 (prepare and implement a Wildlife Mortality Monitoring Program).

4.4.2.10 American Badger

As described for burrowing owl above, O&M, such as vegetation management or regrading access roads that result in disturbance beyond the approved permanent footprint, have the potential to injure or kill American badgers by crushing them in their dens or crushing den entrances with O&M equipment, which would prevent badgers from escaping. These potential impacts to American badgers during O&M are considered significant and would be reduced to a level below significance by the requirement to conduct a pre-construction surveys for the species in accordance with MM 32 if O&M activities have the potential to disturb habitat outside of the approved permanent project footprint. To further reduce this potential impact, MM 2 requires preparation of a WEAP, which includes actions and reporting procedures to be used if American badger are encountered and requires annual reporting to ensure compliance with the WEAP.

4.4.2.11 Peninsular Bighorn Sheep

Direct Impacts

As with construction, O&M activities have the potential to directly impact PBS through impacts to USFWS Essential Habitat, mortality of PBS as a result of collision with construction equipment, elimination of access to foraging areas, disruption of reproduction or lambing activities, prevention of dispersal or intermountain movements.

As described for the burrowing owl above, certain O&M activities (e.g., vegetation management or regrading access roads) could result in disturbance beyond the approved permanent footprint. Impacts to USFWS Essential Habitat would occur if those additional ground disturbance activities occur in USFWS Essential Habitat. Potential impacts to USFWS Essential Habitat are considered significant and would be reduced to a level below significance by implementation of MM 30 (PBS monitoring during O&M) in accordance with a Bighorn Sheep Mitigation and Monitoring Plan (MM 26) and annual status reports on the PBS (MM 31). Any disturbance to USFWS Essential Habitat beyond the approved project footprint would need to be mitigated in accordance with MM 24 and MM 25. To

further reduce this potential impact, MM 2 requires preparation of a WEAP, which includes measures to reduce potential effects on PBS and requires annual reporting to ensure compliance with the WEAP.

As with construction, vehicle traffic on access roads have the potential to result in direct impacts to PBS through collision with construction vehicles and equipment. The potential effect of colliding with vehicles during O&M is considered significant and would be reduced to a level below significance by implementation of MM 2 (prepare and document compliance with WEAP), MM 9 (15 mile-per-hour speed limit along access roads), MM 26 (prepare a Bighorn Sheep Mitigation and Monitoring Plan), MM 30 (monitor O&M activities in accordance with the Bighorn Sheep Mitigation and Monitoring Plan, including implementing a 1,000-foot buffer if PBS are observed on site), and MM 31 (provide annual PBS status reports).

O&M activities would not eliminate access to foraging areas because the OWEF site would not be fenced.

As discussed under construction, the proposed project does not include WTGs, access roads, or other proposed OWEF features in steep, rocky areas that are reproduction/lambing areas. Noise and activity during O&M activities could significantly affect PBS if the activities result in disturbance to reproduction/lambing areas during the lambing period (January through June). Approximately 8 WTGs are proposed within 3,900 feet of known lambing sites in the I-8 Island. To avoid impacts to the lambing sites, O&M of WTGs within 3,900 feet of PBS lambing sites will be avoided from January 1 through June 30, in accordance with MM 28, which would reduce the level of impact to less than significant.

Noise from O&M activities is not expected to affect PBS reproduction or lambing activities because of the high existing noise levels from traffic on I-8. HELIX collected preliminary noise measures within the I-8 Island in March 2011 to determine the ambient noise levels from vehicle traffic. Ambient noise levels in the habitat directly adjacent to the westbound lanes of I-8 ranged from 60-80 dB(A). Ambient noise levels further from the westbound lanes of I-8 averaged between 50-55 dB(A). O&M activities are not expected to result in increases in noise levels at the known PBS lambing sites for 3 primary reasons: (1) O&M activities within 3,900 feet of lambing sites would not be allowed to occur between January and June (MM 28); (2) all other O&M activities would be at least 3,900 feet from the known lambing areas, and the noise would dissipate across the landscape; and (3) lambing areas are typically located in rugged, secure locations on rocky hillsides to allow ewes to keep lambs protected.

O&M is not anticipated to affect PBS intermountain movement for the same reasons that construction is not anticipated to affect intermountain movement.

Indirect Impacts

As with construction, O&M activities have the potential to indirectly impact PBS if activities result in behavioral responses due to noise, human activities, and night lighting or if activities result in habitat degradation primarily due to the introduction or spread of invasive weed species. Behavioral responses may also occur as a result of the operating wind farm.

O&M would indirectly affect PBS if activities result in behavioral changes. Once the proposed project is constructed, human activity is expected to be similar to pre-project conditions. The proposed project area contains a number of established BLM roads that are used by OHV recreationists year-round, and probably most particularly when the temperatures are cooler (i.e., during the lambing season when PBS would be most likely to venture into the area to forage). These roads are also used by U.S. Border Patrol year-round. Therefore, O&M activities are not expected to have any more effect from vehicular use and human activity than what already occurs in the area. Noise from O&M activities has the potential to disrupt PBS foraging and resting behaviors because PBS tend to avoid areas where disturbance is occurring, as described in the indirect effects to PBS from construction activities. Similarly, use of night lighting during O&M activities has the potential to disrupt PBS behaviors and significantly impact PBS if PBS are bedding in the vicinity of the night lighting. To minimize potential PBS behavioral responses as a result of human activity, noise, and night lighting, the following mitigation measures will be implemented: MM 26 (prepare a Bighorn Sheep Mitigation and Monitoring Plan), MM 8 (minimize night lighting during O&M), MM 30 (monitor O&M activities in accordance with the Bighorn Sheep Mitigation and Monitoring Plan, including implementing a 1,000-foot buffer if PBS are observed on site), and MM 31 (provide annual PBS status reports).

Development and the associated increases in human activities adjacent to and within occupied PBS habitat have the potential to adversely affect PBS by fragmenting PBS use areas. Occupied PBS habitat occurs to the south, west, and north of the proposed OWEF (i.e., the I-8 Island, Carrizo Gorge, and the Coyote Mountains); however, the footprint of the proposed project is located within suitable but currently unoccupied PBS habitat. Post-construction human activity levels on the proposed OWEF site adjacent to PBS-occupied habitat are expected to be similar to pre-construction levels. Therefore, no additional habitat fragmentation of PBS habitat would occur as a result of the proposed project.

It is not known how PBS would respond when the WTG blades are operating because behavioral studies in response to wind development sites have not been conducted, and no published studies of PBS use of wind energy project sites are available. Some studies suggest, however, that once the primary disturbance (i.e., construction and human presence) is removed, that ungulates (hoofed animals) will acclimate to remaining infrastructure (Walter et al. 2006). A study by Leslie and Douglas (1980, as cited in Walter et al. 2006) indicated that desert bighorn sheep continued to access water sources in close proximity to a water pumping facility during construction even though alternative watering sources were provided further from construction. Potential impacts to PBS as a result of

the operating wind farm would be minimized through the implementation of MM 26 (prepare a Bighorn Sheep Mitigation and Monitoring Plan), MM 31 (provide annual PBS status reports), and MM 30 (collect data on PBS movements during the first 3 years of operation).

As with construction, introduction or spread of invasive plant species during O&M would be a significant, indirect impact to PBS. Impacts associated with invasive plant species during O&M would be reduced to a level below significance through implementation of MM 6 (implement the Integrated Weed Management Plan for the life of the project).

4.4.3 Decommissioning

Decommissioning and reclamation activities associated with the proposed project would result in direct temporary and permanent losses of wildlife species habitats and indirect effects on habitats and species. These activities would include such tasks as vegetation removal, grading, and surface disturbance to remove the WTGs, above-ground electrical components, and substation components, as well as to remove below-ground infrastructure to a depth of 3 feet. They also include surface disturbance to remove roads and to restore vegetation. It is expected that the impacts during decommissioning would be similar to those of construction of the proposed project.

All mitigation measures that are required during construction of the proposed project to avoid or minimize impacts to wildlife resources would also be required during decommissioning and reclamation activities.

4.5 Jurisdictional Areas

Temporary and permanent project-related impacts to Corps jurisdictional areas would total 5.57 acres (Figures 14A-14D; Table 8) and temporary and permanent project-related impacts to CDFG jurisdictional areas would total 23.20 acres (Figures 15A-15D; Table 8). Relative to the total extent of jurisdictional habitats and non-wetland waters within the proposed OWEF site, the project would have minor impacts to federal and state jurisdictional areas. Impacts to jurisdictional areas are considered significant because the impacts are considered a substantial adverse affect on jurisdictional habitats regulated by CDFG and a substantial adverse effect on the Corps-jurisdictional areas regulated under Section 404 of the CWA; therefore, mitigation is required. Implementation of MM 1-7 and 36 would reduce the level of impact to less than significant.

Table 8 IMPACTS TO JURISDICTIONAL AREAS				
Habitat	Corps		CDFG	
	Temporary	Permanent	Temporary	Permanent
Jurisdictional Habitats				
Allscale scrub	0	0	1.39	0.17
Cheesebush scrub	0	0	10.46	4.68
Creosote bush-allscale scrub	0	0	0.06	0
Creosote bush-fourwing saltbush scrub	0	0	0.04	0.02
Desert lavender scrub	0	0	0	0
Fourwing saltbush scrub	0	0	0.45	0.30
Mesquite thicket	0	0	<0.01	0
Smoke tree woodland	0	0	0.86	0.30
Non-Wetlands				
Drainage/Streambed	4.22	1.35	3.40	1.07
Subtotal	**4.22**	**1.35**	**16.66**	**6.54**
TOTAL	**5.57**		**23.20**	

5.0 MITIGATION AND MONITORING

Impact 1 Direct impacts to approximately 80.4 acres of sensitive vegetation communities/habitats on and off site would be a significant impact of the project unless mitigated. These impacts include 7.1 acres of brittle bush scrub, 7.3 acres of desert agave scrub, less than 0.1 acre of mesquite thicket, 8.8 acres of smoke tree woodland, 53.0 acres of teddy bear cholla scrub, and 4.2 acres of white bursage scrub. Impacts to sensitive vegetation communities would be reduced to a level below significance with incorporation of Mitigation Measures 1-4.

Mitigation Measure (MM) 1

Minimize construction related impacts to the maximum extent practicable. Final engineering of the project shall reduce the size of the temporary construction work areas where possible and minimize the impacts to sensitive vegetation communities. Prior to the start of construction, work areas (including, but not limited to, staging areas, access roads, and sites for temporary placement of construction materials and spoils) shall be delineated with orange construction fencing or staking to clearly identify the limits of work and shall be verified by the biological monitor (MM 2) prior to ground disturbing activities. Fencing/staking shall remain in place for the duration of construction. Spoils shall be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. To the extent possible, disturbance of shrubs and surface soils due to stockpiling shall be

minimized. All disturbances, vehicles, and equipment shall be confined to the flagged areas.

When feasible, construction activities shall implement drive and crush rather than grading. Construction equipment would drive over and crush native plants to minimize impacts to the roots of desert shrubs. Drive and crush is expected to reduce the recovery time of vegetation within the temporary construction areas.

MM 2 Conduct biological monitoring during project construction. Prior to ground disturbing activities, an individual shall be designated and approved by the BLM and USFWS as a Designated Biologist[1] (i.e., field contact representative). A Designated Biologist shall be employed for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Each successive Designated Biologist shall be approved by the BLM's Authorized Officer (i.e., BLM field manager, El Centro). The Designated Biologist shall have the authority to ensure compliance with Conservation Measures for the PBS set forth in the Biological Opinion (BO) and with FTHL mitigation measures included herein and will be the primary agency contact for the implementation of these measures. The Designated Biologist will have the authority and responsibility to halt any proposed OWEF activities that are in violation of the BO Conservation Measures or Mitigation Measures. A detailed list of responsibilities of the Designated Biologist is summarized below. To avoid and minimize effects to biological resources, the Designated Biologist shall:

- Notify BLM's Authorized Officer and the USFWS at least 14 calendar days before the initiation of ground disturbing activities.
- Immediately notify BLM's Authorized Officer and the USFWS in writing if the project proponent does not comply with any BO Conservation Measures or Mitigation Measures including, but not limited to, any actual or anticipated failure to implement BO Conservation Measures or Mitigation Measures within the periods specified.
- Conduct compliance inspections daily during on-going construction as clearing, grubbing, and grading are completed, and submit a monthly compliance report to BLM's Authorized Officer until construction is complete.

Prior to proposed OWEF initiation, the Designated Biologist shall develop and implement a Worker Education Awareness Program (WEAP) and

[1] Designated Biologist must have: 1) a Bachelor's degree with an emphasis in ecology, natural resource management, or related science; 2) three years of experience in field biology or a current certification of a nationally recognized biological society such and The Ecological Society of America or the Wildlife Society; 3) previous experience with applying terms and conditions of a Biological Opinion; and 4) an appropriate permit and/or training if conducting focused or protocol surveys for listed or proposed species.

shall be available in English and Spanish. Wallet-sized cards summarizing the information shall be provided to all construction and O&M personnel. The WEAP will include the following:

- An explanation of the function of flagging that designates authorized work areas.
- An explanation of the sensitivity of the vegetation communities and special status plant species within and adjacent to work areas.
- Biology and status of the PBS, FTHL, barefoot banded gecko, rosy boa, burrowing owl, other nesting special status birds, and American badger.
- Measures to reduce potential effects to sensitive vegetation communities, special status plant species, PBS, FTHL, barefoot banded gecko, rosy boa, burrowing owl, other nesting special status birds, and American badger.
- Actions and reporting procedures to be used if PBS, FTHL, barefoot banded gecko, rosy boa, burrowing owl, other nesting special status birds, or American badger are encountered.
- Driving procedures and techniques to reduce wildlife species mortality on roads.
- The importance of avoiding the introduction of invasive weeds onto the proposed OWEF site and surrounding areas.

Biological Monitor(s) shall be employed to assist the Designated Biologist in conducting preconstruction surveys and monitoring ground disturbance, grading, construction, O&M, decommissioning, and restoration activities. The Biological Monitor(s) shall have sufficient education and field experience to understand PBS and FTHL biology, have, experience conducting FTHL field monitoring, be able to identify PBS, PBS sign, FTHL, and FTHL scat, and be able to identify and follow FTHL tracks. The Designated Biologist shall submit a resume, at least 3 references, and contact information for each prospective Biological Monitor(s) to the BLM and USFWS for approval. To avoid and minimize effects to biological resources, the Biological Monitor(s) will assist the Designated Biologist and Bighorn Sheep Monitor with the following:

- Be present during construction activities that take place in PBS Essential Habitat to prevent or minimize harm or injury to PBS.
- Be present during construction activities that take place in FTHL habitat to prevent or minimize harm or injury to FTHL. Activities of the Biological Monitor(s) include, but are not limited to, ensuring compliance with all avoidance and minimization measures, monitoring for FTHLs and removing them from harm's way, and checking the staking/flagging of all disturbance areas to be sure that they are intact and that all construction activities are being kept within the staked/flagged limits.
- At the end of each work day, inspect all potential wildlife pitfalls (e.g., trenches, bores, other excavations) for wildlife and remove wildlife as necessary. If the potential pitfalls will not be immediately backfilled following inspection, the Biological Monitor will ensure that the construction crew slopes the ends of the excavation (3:1 slope) to provide

wildlife escape ramps or will ensure that the construction crew completely and securely covers the excavation to prevent wildlife entry.

- During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 29 degrees Celsius (85 degrees Fahrenheit) for the presence of FTHL and remove them per MM 12 below.
- Inspect the site to help ensure trash and food-related waste is place in closed-lid containers and to ensure that workers do not feed wildlife.

An annual report shall be prepared by the Designated Biologist and submitted to the relevant resource agencies documenting the implementation of the following programs/plans as well as compliance/non-compliance with each avoidance and minimization measure.

- Worker Education Awareness Program (WEAP)
- Habitat Restoration/Revegetation Plan (HRRP; see MM 4 for details)
- Integrated Weed Management Plan (see MM 6 for details)
- Raven Control Plan (see MM 13 for details)
- Bighorn Sheep Mitigation and Monitoring Plan (see MM 24 for details)
- Wildlife Mortality Reporting Program (see MM 35 for details)

MM 3 Permanent impacts to sensitive vegetation communities shall be compensated through a combination of compensation and restoration at a minimum 1:1 ratio or as required by the permitting agencies. Habitat compensation shall be accomplished through agency-approved land preservation or mitigation fee payment for the purpose of habitat compensation of lands supporting comparable habitats to those lands impacted by the proposed project. Restoration may be appropriate as mitigation for permanent impacts provided that restoration is demonstrated to be feasible and the restoration effort is implemented pursuant to a Habitat Restoration/Revegetation Plan (MM 4).

MM 4 Temporarily disturbed areas shall be revegetated according to a Habitat Restoration/Revegetation Plan (HRRP) approved by the BLM and Wildlife Agencies. The HRRP must be approved in writing prior to the initiation of any vegetation disturbing activities. Restoration involves recontouring the land and replacing topsoil (if it was collected). Revegetation also involves planting seed and/or container stock, maintaining the plantings (e.g., weeding, replacement planting, supplemental watering), and monitoring the restored/revegetated areas for a period of at least 5 years (or until the restoration/ revegetation meets all success criteria prior). The HRRP shall include methods to salvage soil and seed in areas containing special status plant species for use in the revegetation of temporary impact areas, and shall include container stock and seed of the affected special status plant species for use in restoration/revegetation areas. Restoration measures in desert

environments generally includes alleviating soil compaction, returning the surface to its original contours, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings with root mass necessary to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering seeds with mulch. If after 5 years of monitoring there are areas that do not meet the success criteria outlined in the HRRP, these areas shall be compensated off site at a 1:1 ratio of equal or better quality habitat compared to what was impacted, in accordance with MM 3. The HRRP shall address revegetation of habitats for special status plant species and special status wildlife species, including but not limited to PBS, FTHL, and burrowing owl.

Impact 2 The proposed project is anticipated to result in impacts to individuals or populations of Harwood's milk-vetch, brown turbans, deboltia, Wolf's cholla, long-lobed four o'clock, and Thurber's pilostyles. Impacts to special status plant species are considered significant. Implementation of MMs 1-5 will further reduce the level of impact to these species. MM 5 also includes a requirement to survey the portions of the proposed project that were not surveyed in spring, fall, and winter 2010 and spring 2011 due to additional project footprint changes.

MM 5 Implement special status plant species avoidance/restoration/ compensation. Prior to the start of construction, a qualified biologist shall conduct focused surveys during the appropriate blooming period for special status plant species for all portions of the proposed project that have not been previously surveyed. When feasible, construction activities should avoid special status plant species. The HRRP (MM 4) shall include methods to salvage soil and seed in areas containing special status plant species for use in the revegetation of temporary impact areas, and shall include container stock and seed of the affected special status plant species for use in restoration/revegetation areas.

Impact 3 The introduction of new weed species into the proposed OWEF site or the spread of existing populations of weed species would be a significant impact to sensitive vegetation communities and special status species unless mitigated. Impacts due to weed species would be reduced to a level below significance with implementation of MMs 1-6.

MM 6 Prepare and implement an Integrated Weed Management Plan to control non-native invasive weeds and invasive plants by abiding by noxious weed control procedures, as developed in cooperation with the BLM and County of Imperial. The Integrated Weed Management Plan for the project shall include a risk assessment of the invasive weed species currently known within the proposed OWEF site, procedures to control their spread on site and to adjacent off-site areas, and procedures to help

minimize the introduction of new weed species. The Integrated Weed Management Plan shall be submitted to the BLM and County for review and approval prior to the start of construction and shall be implemented prior to, during, and following the completion of construction for the life of the project.

Impact 4 The spread of fugitive dust during construction and O&M of the proposed project would be a significant impact to sensitive vegetation communities and special status species unless mitigated. Impacts due to fugitive dust would be reduced to a level below significance with implementation of MM 7.

MM 7 Develop and implement a Fugitive Dust Control Plan in accordance with BLM standards and County of Imperial standards.

Impact 5 The use of night lighting during construction and O&M of the proposed project would be a significant impact to special status species unless mitigated. Impacts due to night lighting would be reduced to a level below significance with implementation of MM 8.

MM 8 Minimize night lighting during construction and O&M by using shielded directional lighting that is pointed downward thereby avoiding illumination to adjacent natural areas and the night sky. Night lighting during O&M shall be minimized to the amount necessary to meet Federal Aviation Administration (FAA) standards. Lighting on WTGs shall include the minimum number of flashes and the briefest flash duration to meet FAA standards. The proposed directional motion activated security lighting at the O&M building shall be shielded down.

Impact 6 The proposed project would result in significant direct impacts to FTHL as a result of construction and O&M activities resulting in morality of FTHL due to crushing of individuals and/or burrows. The proposed project would result in significant impacts to 137.4 acres of occupied FTHL habitat. The proposed project would also result in indirect impacts to FTHL as a result of fugitive dust, night lighting, and the introduction and/or spread of invasive weeds. Impacts to FTHL would be reduced to a level below significance with implementation of MMs 1-4 and 6-15.

MM 9 Speed limits along all access roads shall not exceed 15 miles per hour in order to minimize dust during construction and O&M activities. A Fugitive Dust Control Plan shall be prepared to address fugitive dust during construction (see MM 5).

MM 10 To the maximum extent practicable, grading in FTHL habitat shall be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 75 and 100

degrees Fahrenheit. If grading cannot be conducted during this time, any FTHLs found shall be removed to nearby habitat away from proposed OWEF components and roads where suitable burrowing habitat exists.

MM 11 FTHLs shall be removed from harm's way during all construction activities. FTHL removal shall be conducted by 2 or more Biological Monitors when construction activities are being conducted in occupied FTHL habitat. To the extent feasible, methods to find FTHLs will be designed to achieve a maximal capture rate and shall include, but not be limited to, using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort shall be 30 minutes per 0.40 hectare (one acre). Persons that handle FTHLs shall first obtain all necessary permits and authorization from the CDFG. FTHL removal surveys also shall include:

- Accurate records maintained by the Biological Monitors for each relocated FTHL including sex, snout-vent length, weight, air temperature, location, date, time of capture and release, a close-up photo of the lizard, and a photo of the habitat where it was first encountered. To the extent feasible, a sample of the lizard scat shall be collected. A *Horned Lizard Observation Data Sheet* and a *Project Reporting Form*, from Appendix 8 of the FTHL Rangewide Management Strategy (FTHL Interagency Coordinating Committee [ICC] 2003) shall be completed.
- During construction, quarterly reports describing FTHL removal activity shall be submitted to the BLM, USFWS, and CDFG.

The removal of FTHLs out of harm's way shall include the relocation to nearby suitable habitat away from proposed OWEF components and roads. Relocated FTHLs shall be placed in the shade of a large shrub in undisturbed habitat. The Designated Biologist or Biological Monitor shall be allowed some judgment and discretion when relocating lizards to maximize survival of FTHLs found on the proposed OWEF site.

MM 12 To compensate the loss of occupied FTHL habitat, the FTHL Rangewide Management Strategy allows for the purchase of FTHL habitat and/or monetary compensation, as determined by the FTHL Interagency Coordinating Committee. Permanent impacts to 30.3 acres and temporary impacts to 107.1 acres of occupied FTHL habitat from the Proposed Action shall be mitigated at a 1:1 ratio. If off-site purchase of FTHL habitat is proposed, the project proponent shall obtain approval of the BLM, FTHL Interagency Coordinating Committee, and Wildlife Agencies prior to the purchase, and shall ensure long-term management and protection of the land through the following:

- Prepare a Property Assessment Report (PAR) tailored to the specific acquisition to determine the long-term management funding; and

- The land shall be deeded and transferred to the BLM and managed consistent with the management activities outlined in the FTHL Rangewide Management Strategy.

MM 13 Prepare and implement a Raven Control Plan (prepared and approved by BLM prior to construction) for the portion of the proposed OWEF within occupied and assumed occupied FTHL habitat. The Raven Control Plan shall identify the purpose of conducting raven control and include, at a minimum, training on how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; describe raven control methods to be employed (e.g. perching and nesting deterrents); and describe procedures for documenting the activities on an annual basis. The plan will provide details on the specific measures for storage and disposal of all litter and trash to discourage scavengers that may prey on the FTHL. The methods and reporting requirements shall be developed to be consistent with the monitoring and reporting requirements of the Raven Control Plan prepared for the Sunrise Powerlink project, which crosses through the proposed OWEF.

MM 14 The Designated Biologist or Biological Monitor(s) will evaluate and implement the best measures to reduce FTHL and other wildlife species mortality along access and maintenance roads, particularly during the active period (March 1 through September 30). These measures will include:

- A speed limit of 15 miles per hour in occupied FTHL habitat, and all vehicles must remain on designated access/maintenance roads.
- Pedestrian access outside the limits of the designated access/maintenance roads is permitted year-round as long as no ground disturbing activities take place (e.g., vegetation treatment and weed management or other activities that would require soil disturbance beyond pedestrian footprints).
- Any O&M activity that may result in ground disturbance outside the designated access/maintenance roads shall be conducted outside the FTHL active period whenever feasible.
- If any O&M activity must be conducted during the FTHL active period that may result in ground disturbance, such as weed management or vehicular access off of a designated access/maintenance road, the Designated Biologist or a Biological Monitor shall be present during such activity to ensure that no FTHL mortality results.

Implementation of these measures shall be based on FTHL activity levels, the best professional judgment of the Designated Biologist or Biological Monitor, and site-specific road utilization. FTHL found on access/maintenance roads, if/when monitoring is required, shall be relocated as discussed above.

MM 15 No later than January 31 of each year the proposed OWEF remains in operation, the Designated Biologist shall provide the BLM's Authorized Officer, USFWS, CDFG, and FTHL Interagency Coordinating Committee an annual FTHL Status Report that will include at a minimum:

- A general description of the status of the Action Area.
- Information from the Annual Compliance Report documenting compliance/non-compliance with each avoidance and minimization measure.
- An assessment of the effectiveness of each avoidance and minimization measure.
- A completed *Project Reporting Form* from Appendix 8 of the FTHL Rangewide Management Strategy (FTHL ICC 2003).
- A summary of information regarding any FTHL mortality in conjunction with the Wildlife Mortality Reporting Program (MM 36).
- Recommendations on how the avoidance and minimization measures might be changed to more effectively avoid or minimize future effects to FTHL.

Impact 7 The proposed project would result in significant impacts to barefoot banded gecko as a result of construction and O&M activities resulting in direct and indirect impacts if the species is determined to be present in areas that have not yet been surveyed. Impacts to the species would be reduced to a level below significance with implementation of MMs 1-4, 6-8, and 16.

MM 16 Prior to the start of construction, all areas not previously surveyed for barefoot banded gecko shall be surveyed in accordance with the survey protocol for the species (CDFG 2010a). If barefoot banded gecko is determined to be present within the proposed OWEF footprint, or within 50 feet of the proposed OWEF footprint, the proponent shall be required to obtain a 2081 permit for incidental take of the species prior to the start of construction and comply with the conditions of the permit during construction and O&M.

Impact 8 The proposed project would result in significant impacts to rosy boa as a result of construction and O&M activities. Implementation of MMs 1-4 and 6-8 would reduce the impacts to a level below significance.

Impact 9 Direct impacts to 26 acres of occupied burrowing owl habitat and 4 occupied burrowing owl burrows and indirect impacts to burrowing owls and their habitat would be considered a significant impact. Impacts to burrowing owl would be reduced to a level below significance with implementation of MMs 1-4, 6-8, and 17-20.

MM 17 Prior to the start of construction, all areas not previously surveyed for burrowing owl shall be surveyed during the burrowing owl breeding season in accordance with the CBOC Guidelines (1993).

MM 18 Construction piping or any other construction material with a diameter greater than 3 inches shall be capped or covered if the piping or materials are to be stored in staging areas or temporary impact areas for more than 3 days. If construction piping or construction materials greater than 3 inches in diameter are not covered or capped, they shall be inspected by the Designated Biologist or Biological Monitor prior to being moved or buried.

MM 19 The loss of 26 acres of burrowing owl foraging habitat within 300 feet of occupied burrows shall be mitigated at a 1:1 ratio through a combination of off-site habitat compensation, on-site revegetation of temporary impact areas, and/or on-site or off-site restoration of disturbed habitat.

MM 20 A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. If the burrowing owl is absent, then no mitigation is required. If the burrowing owl is present, no disturbance shall occur within 250 feet of occupied burrows during the breeding season (February 1 through August 31) or within 50 meters (approximately 160 feet) of occupied burrows during the non-breeding season (September 1 through January 31; CDFG 1995). The results of the pre-construction burrowing owl survey shall be provided to BLM and CDFG for review and concurrence prior to the start of construction.

Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG, and only if the above-described occupied burrow disturbance absolutely cannot be avoided (e.g., due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). A Burrowing Owl Mitigation and Monitoring Plan shall be submitted to the BLM's Authorized Officer and CDFG for review and approval prior to passive relocation.

Impact 10 Construction of the proposed project would result in significant direct and indirect impacts to golden eagle foraging habitat. Impacts would be reduced to a level below significance with implementation of MMs 1-4, 6, 8, and 21.

MM 21 The project proponent shall develop and implement an Eagle Conservation Plan to address proposed OWEF impacts to golden eagles. The project proponent shall prepare and submit an Eagle Conservation Plan to the

BLM and Wildlife Agencies for review and approval prior to initiation of proposed OWEF construction. The Eagle Conservation Plan shall be prepared in accordance with the Draft Eagle Conservation Plan Guidance (USFWS 2011). The Eagle Conservation Plan shall describe the golden eagle studies completed for the proposed OWEF; a risk analysis; advanced conservation practices to be implemented during operations, including a description of the adaptive management strategy for the proposed OWEF and compensatory mitigation; and post-construction monitoring and reporting procedures for golden eagles.

Impact 11 Construction of the proposed project would result in a significant impact to migratory bird species protected under the MBTA if active nests are removed. Impacts would be reduced to a level below significance with implementation of MMs 1-4, 6-8, 22 and 23.

MM 22 The project proponent will develop and implement an Avian and Bat Protection Plan to address proposed OWEF impacts to special status avian and bat species and will submit the plan to the BLM, USFWS, and CDFG for review and approval prior to initiation of proposed OWEF construction. The Avian and Bat Protection Plan shall be prepared in accordance with the interim guidance provided by USFWS (2010). The Avian and Bat Protection Plan shall describe proposed OWEF design features and advanced conservation practices to be used to minimize the risk of collision pre-construction, during construction, and during O&M. The plan shall include monitoring, adaptive management, and reporting procedures. The post-construction monitoring methods shall be based on the California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC 2007).

MM 23 Vegetation clearing shall take place outside of the general avian breeding season (February 15-September 1), when feasible. If vegetation clearing cannot occur outside the avian breeding season, the Designated Biologist/Biological Monitor shall conduct a preconstruction survey for nesting birds no more than 7 days prior to vegetation clearing. If no active nests are found, clearing can proceed. If active nests are found, no clearing would be allowed within 100 feet of the active nests until the Designated Biologist determines the nest is no longer active or if the nest fails. The Designated Biologist/Biological Monitor shall submit the results of the pre-construction nesting bird surveys to BLM and appropriate agencies.

Impact 12 Project impacts to PBS lambing areas and foraging areas during construction and O&M activities would be considered a significant impact. Impacts to PBS would be reduced to a level below significance with incorporation of MMs 1-4, 6-8, and 22-29. The mitigation measures would be implemented in concert with a radar and camera system, which

is proposed by the project proponent in order to help detect bighorn sheep that could potentially enter the proposed OWEF site.

MM 24 Temporary impacts to 129.5 acres of USFWS Essential Habitat for PBS from the Proposed Action shall be mitigated at a 1:1 ratio through revegetation of all temporary impact areas. Prior to the start of construction, a Habitat Restoration/Revegetation Plan (HRRP) shall be prepared and approved in writing by BLM, USFWS, and CDFG in accordance with MM 4. The HRRP shall address revegetation of habitats for special status wildlife species, including but not limited to PBS, FTHL, and burrowing owl. If after 5 years of monitoring, there are areas that do not meet the success criteria outlined in the HRRP, these areas shall be compensated off site at a 1:1 ratio of equal or better quality habitat compared to what was impacted, in accordance with MM 3.

MM 25 The Proposed Action's permanent impacts to 43.9 acres of USFWS Essential Habitat would be compensated at a 1:1 ratio by purchasing or restoring Essential Habitat from private landowners, which shall be made permanently available for PBS. "Available" is defined as habitat located in or immediately adjacent to the Essential Habitat line, as delineated in the Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California (USFWS 2000).

MM 26 Prior to construction, a Bighorn Sheep Mitigation and Monitoring Plan shall be submitted to the BLM, USFWS, and CDFG for review and approval. The monitoring plan shall describe the monitoring and reporting procedures and the construction limitations to be implemented if sheep are observed in the proposed OWEF site.

MM 27 A biological consultant approved by the BLM, USFWS, and CDFG shall be retained by the project proponent to serve as the Bighorn Sheep Monitor of construction activities within USFWS Essential Habitat on the proposed OWEF site, in accordance with the Bighorn Sheep Mitigation and Monitoring Plan for the proposed OWEF. The Bighorn Sheep Monitor shall be present if proposed OWEF activities are planned within 300 meters (approximately 1,000 feet) of Essential Habitat. If PBS are observed within the Action Area, no construction activities shall be conducted within 1,000 feet of the sheep until the Bighorn Sheep Monitor verifies that the sheep have moved to at least 1,000 feet from planned activities. If the Bighorn Sheep Monitor determines that proposed OWEF activities are unlikely to adversely affect or disrupt normal behavior of the PBS, planned activities may proceed. If the Bighorn Sheep Monitor is not present on site when sheep are observed, all proposed OWEF activities within 1,000 feet of Essential Habitat will stop, and the Bighorn Sheep Monitor shall be contacted immediately for guidance on how to proceed with planned activities. The Bighorn Sheep Monitor shall have complete

access to the project proponent's proposed biological observation tower and radar and camera system. The Bighorn Sheep Monitor shall prepare daily monitoring reports that will be submitted to the Designated Biologist and BLM, as well as to the USFWS and CDFG (if requested).

MM 28 Construction and O&M of WTGs within approximately 3,900 feet (1,200 meters) of PBS lambing sites shall be avoided during the PBS lambing season (i.e., January 1 through June 30). For the Proposed Action, 8 WTGs (WTGs 22-28 and WTG 77) are proposed within 1,200 meters of 2010 lambing sites in the I-8 Island (i.e., the area between the eastbound and westbound lanes of I-8, the northern portion of which is in the Project Area), and there is direct line of sight between the lambing areas and the proposed WTGs. In addition, 4 additional WTGs (WTGs 19-21 and WTG 29) would not be constructed during the lambing season because the access road to these WTGs would also be restricted from use by heavy equipment during the lambing season. Furthermore, site preparation and use of the rail unloading area shall be avoided during the lambing season. The Bighorn Sheep Monitor shall coordinate with USFWS and CDFG to help determine the locations of any nearby lambing sites being used prior to and during the construction period of the proposed OWEF.

MM 29 A biological consultant approved by the BLM and wildlife agencies shall be retained by the project proponent to collect data on PBS movements in the project area during the construction phase. The study methods shall be described in the Bighorn Sheep Mitigation and Monitoring Plan and submitted to the BLM, USFWS, and CDFG for review and approval.

MM 30 The Designated Biologist, Biological Monitor(s), and/or Bighorn Sheep Monitor shall evaluate and implement the best measures to minimize PBS disturbance. These measures will include:

- The Bighorn Sheep Monitor shall monitor O&M activities in accordance with the measures described in the Bighorn Sheep Mitigation and Monitoring Plan. If PBS are observed or detected by the Designated Biologist, Monitoring Biologist, Bighorn Sheep Monitor, or the Merlin Avian Radar System within the Project Area, no O&M activities shall be conducted within 1,000 feet of the sheep until the Bighorn Sheep Monitor verifies that the sheep have moved to at least 1,000 feet from planned activities. If the Bighorn Sheep Monitor determines that proposed OWEF activities are unlikely to adversely affect the sheep or disrupt normal behavior, planned activities could proceed. If the Bighorn Sheep Monitor is not present on site when sheep are observed, all activities shall stop and the Bighorn Sheep Monitor shall be contacted immediately for guidance on how to proceed with planned activities. O&M activities could proceed when the Bighorn Sheep Monitor/Designated Biologist verifies that the sheep have moved to at least 1,000 feet from planned activities or

determines that proposed OWEF activities are unlikely to adversely affect the sheep or disrupt normal behavior.

- The project proponent's proposed ABOCC observation tower shall be used to monitor for PBS (in addition to raptor species). A Merlin Avian Radar System would be installed on top of the tower and would include horizontal-band and vertical-band radar and a high-resolution video camera. The video camera has night vision video system for documenting PBS during the night as well as the day. The 50-foot tall ABOCC tower would include a 360-degree view of the site from an enclosed, air-conditioned control room as well as radar monitors, video monitors and controls, and radio telemetry data monitors for monitoring for PBS and avian species.
- The project proponent will employ a biologist at the ABOCC observation tower full time for the first 3 years of operation, and potentially up to an additional 2 years of operations, depending on the success of the monitoring. The success of the monitoring will be determined by the monitoring biologist in coordination with USFWS, CDFG, and BLM. The monitoring biologist shall be approved by the BLM and USFWS. The 2 primary responsibilities of the biologist shall be to monitor for PBS and raptors. The Merlin Avian Radar System is expected to detect PBS movements within the Project Area and this information will be used to determine the areas where O&M activities should be avoided in accordance with this mitigation measure.
- The Bighorn Sheep Monitor shall have complete access to the project proponent's proposed ABOCC observation tower and radar and camera system.
- All vehicles must remain on designated access/maintenance roads.
- The biological consultant retained to collect data on PBS movements in the Project Area during the construction phase (MM 29) shall also be retained to collect data on PBS movements in the project area during the first 3 years of operation of the OWEF.

MM 31 No later than January 31 of each of the first 3 years the OWEF remains in operation, the Designated Biologist will provide the BLM's Authorized Officer, USFWS, and CDFG an annual PBS Status Report that will include at a minimum:

- A general description of the status of the Action Area.
- Information from the Annual Compliance Report documenting compliance/non-compliance with each avoidance and minimization measure.
- An assessment of the effectiveness of each avoidance and minimization measure.
- A summary and map of PBS sightings in the Action Area.
- Recommendations on how the avoidance and minimization measures might be changed to more effectively avoid or minimize future effects to PBS.

Impact 13 The proposed project would result in significant impacts to American badger as a result of construction and O&M activities. Implementation of MMs 1-4, 6-8, and 32 would reduce the impacts to a level below significance.

MM 3230 A qualified biologist shall survey for American badger concurrent with the pre-construction survey for burrowing owl. If badgers are detected, the biologist shall passively relocate badgers out of the work area prior to construction if feasible. If an active den is detected within the work area, the project proponent shall avoid the den, if feasible, until the qualified biologist determines the den is no longer active. Dens that are determined to be inactive by the qualified biologist shall be collapsed by hand to prevent occupation of the burrow between the time of the survey and construction activities.

Impact 14 Operation of the OWEF site would impact avian and bat species as a result of electrocution and collisions with project features. Impacts to special status species that are either listed or highly sensitive species (i.e., golden eagle, Swainson's hawk, peregrine falcon, and burrowing owl), or that are at a higher risk of collision (i.e., Vaux's swift, Brewer's sparrow, and western mastiff bat) would be considered significant and would require mitigation to minimize the impacts. Impacts to special status avian and bat species would be reduced to a level below significance with incorporation of MMs 2, 21, 22, and 33-35. The mitigation measures would be implemented in concert with the project proponent's radar/camera system and ABOCC observation tower, which is proposed by the project proponent in order to help detect raptors (including golden eagles) and large flocks of birds and bats that could potentially enter the proposed OWEF site.

MM 33 Project transmission lines shall conform to Avian Power Line Interaction Committee (APLIC) standards for collision-reducing techniques (APLIC 2006).

MM 34 A biological consultant approved by the BLM, USFWS, and CDFG shall be retained by the project proponent to conduct a post-construction bird and bat species mortality monitoring program in accordance with the monitoring and reporting methods of the Eagle Conservation Plan (MM 21) and Avian and Bat Protection Plan (MM 22).

MM 35 Prepare and receive approval from the BLM of a Wildlife Mortality Reporting Program. This program shall be implemented during O&M and calls for the identification and reporting of any dead or injured animals observed by personnel conducting O&M activities. Reporting is necessary during construction and O&M to demonstrate compliance with the

avoidance and minimization measures, to assess the effectiveness of the measures, and to make recommendations, if necessary, for future compliance. An appropriate reporting format shall be developed in coordination with the BLM and USFWS.

Impact 15 Impacts to 5.57 acres of Corps jurisdictional areas and impacts to 23.20 acres of CDFG jurisdictional areas would be considered significant. Impacts to jurisdictional areas would be reduced to a level below significance with implementation of MMs 1-4, 20, and 21.

MM 36 The project proponent shall prepare and implement a Jurisdictional Mitigation Plan to describe the mitigation for impacts to jurisdictional areas within the proposed OWEF site. The Jurisdictional Mitigation Plan shall be submitted to the Corps, RWQCB, and CDFG for review and approval and shall describe the location and size of the mitigation proposed, description of the habitat creation/restoration effort, success criteria, and maintenance and monitoring specifications.

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Appendix A

SURVEY INFORMATION

Appendix A
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2009		
September 1, 2009	DL, JK	Avian point count
September 2, 2009	DL, JK	Avian point count
September 10, 2009	DL, JK	Avian point count
September 11, 2009	DL, JK	Avian point count
September 15, 2009	DL, JK	Avian point count
September 16, 2009	DL, JK	Avian point count
September 21, 2009	DL, JK	Avian point count
September 22, 2009	DL, JK	Avian point count
September 24, 2009	KD, JK,EL, JKo	Raptor migration survey
September 25, 2009	KD, JK,EL, JKo	Raptor migration survey
September 28, 2009	KD, JK,EL, JKo	Raptor migration survey
September 29, 2009	KD, JK,EL, JKo	Raptor migration survey
September 30, 2009	KD, JK,EL, JKo	Raptor migration survey
October 2, 2009	KD, RH, JK, EL	Raptor migration survey, Avian point count
October 6, 2009	KD, EL, JKo	Raptor migration survey
October 7, 2009	KD, EL, JKo, MBa	Raptor migration survey
October 8, 2009	KD, EL, JKo, DR	Raptor migration survey
October 9, 2009	KD, EL, JKo, DR	Raptor migration survey, Avian point count
October 12, 2009	KD, RH, DR, EL	Raptor migration survey
October 13, 2009	KD, JKo, DR, EL	Raptor migration survey
October 14, 2009	KD, JKo, DR, EL	Raptor migration survey
October 16, 2009	KD, JKo, DR	Raptor migration survey, Avian point count
October 19, 2009	KD, JK, EL, JKo	Raptor migration survey
October 20, 2009	KD, JK, EL, DR	Raptor migration survey
October 22, 2009	KD, JK, EL, JKo	Raptor migration survey
October 23, 2009	KD, JKo, DR	Raptor migration survey, Avian point count
October 26, 2009	KD, JKo, DR	Raptor migration survey, Avian point count

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2009 (cont.)		
October 28, 2009	KD, JKo, DR, JK	Raptor migration survey
October 29, 2009	KD, JKo, DR, JK	Raptor migration survey
October 30, 2009	JKo, DR, JK, EL	Raptor migration survey
November 2, 2009	KD, EL, JKo, JK	Raptor migration survey
November 3, 2009	DR, KD, JK, EL	Raptor migration survey
November 5, 2009	KD, JK, EL, JKo	Raptor migration survey
November 6, 2009	KD, JK, EL, JKo	Raptor migration survey, Avian point count
November 9, 2009	KD, JK, EL, JKo	Raptor migration survey
November 10, 2009	KD, JK, EL, DR	Raptor migration survey
November 13, 2009	DR, KD, JK	Avian point count
November 19, 2009	EL, KD, JK	Avian point count
November 24, 2009	EL, DR, KD	Avian point count
November 2009	WB	Peninsular bighorn sheep survey
December 11, 2009	JK, DR	Avian point count
December 18, 2009	JK, DR	Avian point count
December 22, 2009	EL, JK	Avian point count
December 31, 2009	JK, DR, EL	Avian point count
December 2009 (2 surveys)	WB	Peninsular bighorn sheep survey
2010		
January 3, 2010	WB	Peninsular bighorn sheep survey
January 6, 2010	EL, JK	Avian point count
January 15, 2010	DR, EL	Avian point count
January 16, 2010	JK, SN, AM, EL	Burrowing owl survey
January 17, 2010	DR, KD	Burrowing owl survey
January 25, 2010	DR, JB	Burrowing owl survey
January 26, 2010	AM, KD	Burrowing owl survey
January 27, 2010	KD, EL	Burrowing owl survey
January 28, 2010	DR, RH, KD, EL	Burrowing owl survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
January 29, 2010	DR, RH, JB, AM	Burrowing owl survey
	KD, EL	Avian point count
	MR	Bat survey
January 30, 2010	MR	Bat survey
January 31, 2010	MR	Bat survey
February 4, 2010	MR	Bat survey
February 5, 2010	KD, EL	Avian point count
	MR	Bat survey
February 12, 2010	JK, EL	Avian point count
	MR	Bat survey
February 19, 2010	EL, KD	Avian point count
February 26, 2010	EL, KD	Avian point count
February 28, 2010	MR	Bat survey
March 5, 2010	EL, KD	Avian point count
March 9, 2010	MR	Bat survey
March 12, 2010	EL, KD	Avian point count
March 19, 2010	EL, KD	Avian point count
March 22, 2010	LS, ST, JB, JR, MM, CB	Rare plant survey
	KD, EL, JK, RH,	Raptor migration survey
March 23, 2010	LS, ST, JB, CB	Rare plant survey
	KD, EL, JK, RH,	Raptor migration survey
March 24, 2010	LS, ST, SN, KD, CB	Rare plant survey
March 25, 2010	LS, JB, AM, CB	Rare plant survey
	DR, DL, JK, KD	Raptor migration survey
March 26, 2010	LS, ST, AM, JB, SN, CB	Rare plant survey
	KD, EL	Avian point count
March 29, 2010	LS, ST, JB	Rare plant survey
	JK, KD, DR, DL	Raptor migration survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
March 30, 2010	LS, ST, JB, DR	Rare plant survey
	JK, KD, EL, RH	Raptor migration survey
	WRI	Golden eagle survey
March 31, 2010	KD, JK, RH, DL	Raptor migration survey
April 1, 2010	JB, AM, DL	Rare plant survey
	WRI	Golden eagle survey
April 2, 2010	LS, ST, KD, AM	Rare plant survey
	EL, JK	Avian point count
	WRI	Golden eagle survey
April 3, 2010	WRI	Golden eagle survey
April 5, 2010	LS, LH	Rare plant survey
	DR, KD, RH, RO	Raptor migration survey
April 6, 2010	LS, LH, KD	Rare plant survey
	RO, EL, RH, JK	Raptor migration survey
April 7, 2010	LS, LH, KD, AM	Rare plant survey
April 8, 2010	LS, JB, LH	Rare plant survey
	EL, KD, DR, JK	Raptor migration survey
April 9, 2010	LS, ST, SN, JB, AM, KD, DR	Rare plant survey
	EL, JK	Avian point count
April 10, 2010	LS, LH, CB, MM, GB	Rare plant survey
April 12, 2010	LS, JB, AM, ST, SN, DR, LH, MC	Rare plant survey
	RO, RH, JK, KD	Raptor migration survey
April 13, 2010	LS, DR, ST, KD, LH, MC, MM, JR	Rare plant survey
	JK, RH, RO, EL	Raptor migration survey
April 14, 2010	LS, KD, LH, MC	Rare plant survey
	MR	Bat survey
April 15, 2010	LS, ST, JB, SN, LH, AM, MC	Rare plant survey
	KD, EL, JK, DR	Raptor migration survey
April 16, 2010	ST, SN, KD, DR, EP	Rare plant survey
	JK, EH, EL	Avian point count

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
April 16, 2010	MR	Bat survey
April 17, 2010	LS, CB, GB	Rare plant survey
April 17, 2010	MR	Bat survey
April 18, 2010	MR	Bat survey
April 19, 2010	ST, DR, JB, AM, EP, LH, MC	Rare plant survey
	RO, JK, KD, RH	Raptor migration survey
April 20, 2010	ST, DR, SN, JB, KD	Rare plant survey
	RO, RH, EL, JK	Raptor migration survey
	KD	Avian point count
April 21, 2010	LS, JB, KD, EP, MC, LH	Rare plant survey
April 22, 2010	LS, AM, EP, JB, KD, ST, SN	Rare plant survey
	RO, DL, EL, JK	Raptor migration survey
April 23, 2010	LS, ST, AM, JB, SN, EP	Rare plant survey
	EL, JK, EH	Avian point count
	MR	Bat survey
April 24, 2010	MR	Bat survey
April 25, 2010	MR	Bat survey
April 26, 2010	LS, AM, DR, JB, ST, SN, EP, MC, LH, CB	Rare plant survey
	RH, RO, KD, JK	Raptor migration survey
April 27, 2010	ST, AM, EP, JB, MC, LH, CB, MB, CH	Rare plant survey
	JK, EL, KD, RO	Raptor migration survey
April 28, 2010	ST, DR, EP, JB, MC, LH, CB, MB	Rare plant survey
April 29, 2010	LS, JW, EP, DR, MC, LH, SB, MB, CH	Rare plant survey
	EL, JK, RO, KD	Raptor migration survey
April 30, 2010	LS, EP, MC, MB, CH	Rare plant survey
	KD, EL	Avian point count
	MR	Bat survey
May 4, 2010	EL, JK, RO	Raptor migration survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
May 5, 2010	JK, RO, DR, KD	Raptor migration survey
May 6, 2010	DR, EL, KD	Raptor migration survey
May 7, 2010	EP, KD, EP	Avian Point Count
May 8, 2010	MR	Bat survey
May 10, 2010	KD, RO, JK, RH	Raptor migration survey
May 11, 2010	EL, JK, RO, DR	Raptor migration survey
May 13, 2010	RH, KD, RO, EL	Raptor migration survey
May 14, 2010	KD, EL	Avian point count
	MR	Bat survey
May 15, 2010	MR	Bat survey
May 16, 2010	MR	Bat survey
May 17, 2010	JK, DL, RO, RH	Raptor migration survey
May 18, 2010	RO, EL, JK, DL	Raptor migration survey
May 20, 2010	DL, EL, RH, RO	Raptor migration survey
	MR	Bat survey
May 21, 2010	EL, RH	Avian Point Count
May 24, 2010	JK, EH, RO, DL	Raptor migration survey
May 25, 2010	KD, RO, EH, EP	Raptor migration survey
May 27, 2010	KD, EH, RO, EL	Raptor migration survey
May 28, 2010	EL	Avian Point Count
May 29, 2010	RO	Avian Point Count
May 31, 2010	ED, et al	Barefoot banded gecko survey
June 1, 2010	ED, et al	Barefoot banded gecko survey
June 2, 2010	EL, EH, EP	FTHL survey
	ED, et al	Barefoot banded gecko survey
June 3, 2010	ED, et al	Barefoot banded gecko survey
June 4, 2010	ED, et al	Barefoot banded gecko survey
June 6, 2010	KD, EH, EL	Avian point count
June 7, 2010	RH, KD, EP	FTHL survey
June 8, 2010	KD, EH, EP	FTHL survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
June 9, 2010	EL, EH, EP	FTHL survey
June 10, 2010	EL, EH, AM	FTHL survey
	RH, KD,	Avian point count
June 11, 2010	EL, EH, EP	FTHL survey
June 14, 2010	DR, KD, JK	Burrowing owl survey
	DR, KD, JK, EH, EP, SN	FTHL survey
June 15, 2010	KD, EH, JK	FTHL survey
June 16, 2010	EL, DR, EH	FTHL survey
June 17, 2010	AM, EH, EP	Burrowing owl survey
	EL, KD, RO, EH, EP, AM	FTHL survey
	KD, EL	Avian point count
June 18, 2010	KD, EL, RO	Burrowing owl survey
June 21, 2010	DR, KD, JK	Burrowing owl survey
	RH, EP, RO, DR, KD, JK	FTHL survey
June 22, 2010	RH, DR, EP	FTHL survey
June 23, 2010	KD, EL	Burrowing owl survey
	DR, JK, EP, KD, RO, EL	FTHL survey
June 24, 2010	JK, EP, DR	Burrowing owl survey
	DR, JK, EP, EL, DR, RO	FTHL survey
	ED, et al	Barefoot banded gecko survey
June 25, 2010	EL, DR, RO, RH, EH, AM	FTHL survey
	DL, KD	Avian point count
	ED, et al	Barefoot banded gecko survey
June 27, 2010	ED, et al	Barefoot banded gecko survey
June 28, 2010	EH, JK, JB, KD, EP, AM	FTHL survey
June 29, 2010	EH, JK, EP, KD, DR, RO	FTHL survey
June 30, 2010	KD, EL, RH, JB	Burrowing owl survey
	EL, KD, EH, RH, JK, JB	FTHL survey
July 1, 2010	RH, EH	Burrowing owl survey
	RH, EH, EP, EL, KD	FTHL survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
July 2, 2010	RH, AM, JB, EH, EL	FTHL survey
	DL, RH, EL, JK	Avian point count
July 6, 2010	EL, AM, EH, EP, JK	FTHL survey
July 7, 2010	KD, JB, AM	Burrowing owl survey
	KD, JB, AM, EH, EL, EP	FTHL survey
July 8, 2010	JK, EP,	Burrowing owl survey
	EL, JK, EP, KD, EH, RO	FTHL survey
July 9, 2010	JK, EH, EL, RO, AM	FTHL survey
	KD, RH	Avian point count
July 12, 2010	EH, AM, RO, KD, JK, EP	FTHL survey
July 13, 2010	EH, JK, RO, KD, AM, EP	FTHL survey
	ED, et al	Barefoot banded gecko survey
July 14, 2010	EL, KD, RH, JK, JB	FTHL survey
	ED, et al	Barefoot banded gecko survey
July 15, 2010	RH, JB, AM, EL, KD, RO	FTHL survey
	DL, JK	Avian point count
	ED, et al	Barefoot banded gecko survey
July 16, 2010	DR, JB, AM, EL, KD, RO	FTHL survey
	DL, JK	Avian point count
July 16, 2010	MR, EP	Bat Survey
July 18, 2010	MR	Bat Survey
July 19, 2010	DR, JK, EP, EL, KD, RO	FTHL survey
	MR	Bat Survey
July 20, 2010	EH, EL, JK, KD, DR, RO	FTHL survey
July 21, 2010	KD, JB, JK, EL, EH, EP	FTHL survey
July 22, 2010	KD, JB, RO, EL, EH, EP	FTHL survey
	DL, JK	Avian point count
July 23, 2010	KD, AM, JK, EL, EH, RO	FTHL survey
	DL, JK	Avian point count
July 26, 2010	EL, KD, RH, JK, EH	Burrowing owl survey
		FTHL survey
	ED, et al	Barefoot banded gecko survey
July 27, 2010	RH, EH, JK, KD, EL, AM	Burrowing owl survey
		FTHL survey
	ED, et al	Barefoot banded gecko survey
July 28, 2010	KD, DR, JB, EL, EH, EP	Burrowing owl survey
		FTHL survey
	DL	Avian point count

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
July 29, 2010	RH, EH, EP, EL, KD, AM	Burrowing owl survey
		FTHL survey
	DL, JK	Avian point count
	ED, et al	Barefoot banded gecko survey
July 30, 2010	RH, EP, JK, EL, KD, EH	Burrowing owl survey
		FTHL survey
August 2, 2010	EL, KD, EH, RH, AM, EP	Burrowing owl survey
		FTHL survey
August 3, 2010	EL, KD, EH, AM, RH, JK, JB	Burrowing owl survey
		FTHL survey
August 4, 2010	EH, JB, EP, EL, KD, RO	FTHL survey
August 5, 2010	RH, EP, AM, EL, KD, EH	FTHL survey
	DL	Avian point count
August 6, 2010	EL, EH, EP	FTHL survey
	RH, DL	Avian point count
	MR	Bat Survey
August 7, 2010	MR	Bat Survey
August 8, 2010	MR	Bat Survey
August 10, 2010	MR	Bat Survey
August 12, 2010	KD, EH, EP, DL	Avian point count
August 13, 2010	KD	Avian point count
August 19, 2010	DL, EP,	Avian point count
August 20, 2010	DL, EH, JK	Avian point count
August 23, 2010	DR, KD, EH,	Raptor migration survey
August 23, 2010	KD, EH, DL	Raptor migration survey
August 24, 2010	JK, KD, EH	Avian point count
August 25, 2010	KD, EH, JK	Avian point count
August 26, 2010	KD, RH, JK	Raptor migration survey
August 27, 2010	JK	Avian point count
August 30, 2010	JK, KD, RH	Raptor migration survey
August 31, 2010	DR, RH, KD	Raptor migration survey
September 3, 2010	JK, KD, DR	Raptor migration survey
	MR	Bat Survey
September 4, 2010	MR	Bat Survey
September 5, 2010	MR	Bat Survey
September 7, 2010	JK, DL, DR	Raptor migration survey
September 9, 2010	EH, JK, RH	Raptor migration survey
	MR	Bat Survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
September 10, 2010	DR, EH, RH	Raptor migration survey
	MR	Bat Survey
September 15, 2010	JK, KD, EL	Raptor migration survey
September 16, 2010	EL, RH, DL	Raptor migration survey
September 17, 2010	RH, EL, JK	Raptor migration survey
September 20, 2010	EL, KD, RH	Raptor migration survey
September 21, 2010	DR, EL	Raptor migration survey
September 24, 2010	KD, JK, DR	Raptor migration survey
September 27, 2010	DL, EL, DR	Raptor migration survey
September 28, 2010	JK, DR, EL	Raptor migration survey
September 30, 2010	DR, EL, EH	Raptor migration survey
October 4, 2010	EL, DR, JK	Raptor migration survey
	MR	Bat Survey
October 5, 2010	JK, DR, EL	Raptor migration survey
October 6, 2010	EH, EL, DR	Raptor migration survey
October 8, 2010	MR	Bat Survey
October 9, 2010	MR	Bat Survey
October 10, 2010	MR	Bat Survey
October 11, 2010	RH, EL, DL	Raptor migration survey
October 12, 2010	EH, RO, EL	Raptor migration survey
October 13, 2010	DL, RO, EL	Raptor migration survey
October 15, 2010	LS, CB	Rare plant survey
October 17, 2010	DR, CB	Rare plant survey
October 18, 2010	LS, EP	Rare plant survey
October 21, 2010	DR, EP, LS, ST	Rare plant survey
	JK, ROEL	Raptor migration survey
October 22, 2010	DR, EP, AM, LS, ST	Rare plant survey
	RO, EL, EH	Raptor migration survey
	LS, SN	Jurisdictional delineation
	MR	Bat Survey
October 23, 2010	MR	Bat Survey
October 24, 2010	MR	Bat Survey
October 25, 2010	LS, DR	Rare plant survey
October 26, 2010	DR, AM	Rare plant survey
October 27, 2010	DR, JB, KD	Rare plant survey
	EH, EL, RO	Raptor migration survey
October 28, 2010	DR, JB, KD, LS	Rare plant survey
	DL, EL, RO	Raptor migration survey
	MR	Bat Survey

Appendix A (cont.)
SURVEY INFORMATION

DATE(S)	PERSONNEL	SURVEY TYPE
2010 (cont.)		
October 29, 2010	DR, JB, LS	Rare plant survey
	EH, ELKD	Raptor migration survey
November 1, 2010	DR, LS, JR	Rare plant survey
November 2, 2010	DR, LS, JR, MB, CB	Rare plant survey
November 3, 2010	DR, MB, CB	Rare plant survey
	EL, RO, KD	Raptor migration survey
November 4, 2010	DR, AM, MB, CB	Rare plant survey
	EL, KD, JK	Raptor migration survey
November 5, 2010	DR, LS, SN, CB	Rare plant survey
	EL, JK, EH	Raptor migration survey
November 6, 2010	LS	Rare plant survey
November 8, 2010	DR, JR, AM, LS, KD	Rare plant survey
November 9, 2010	ST, LS, KD, EP	Rare plant survey
November 10, 2010	LS, EP	Rare plant survey
	EH, JK, EL	Raptor migration survey
November 11, 2010	LS, EP, AM, ST, SN	Rare plant survey
	EL, EH	Raptor migration survey
November 12, 2010	EH, JK, EL	Raptor migration survey
	MR	Bat Survey
November 15, 2010	LS, KD, EP, JR	Rare plant survey
November 16, 2010	LS, KD, EP, ST	Rare plant survey
November 17, 2010	LS, EP, JR	Rare plant survey
November 18, 2010	KD, AM	Rare plant survey
November 18, 2010	LS	Jurisdictional delineation
November 19, 2010	ST, EP	Rare plant survey
November 19, 2010	LS	Jurisdictional delineation
November 21, 2010	MR	Bat Survey
November 22, 2010	DR, EP, KD, JR	Rare plant survey
	LS	Jurisdictional delineation
	MR	Bat Survey
November 23, 2010	ST, DR, KD, JR	Rare plant survey
	LS	Jurisdictional delineation
November 24, 2010	LS	Jurisdictional delineation
	ST, JR, DR, KD, EP	Rare plant survey
November 30, 2010	AM, ST	Rare plant survey
December 2, 2010	AM, ST	Rare plant survey
December 6, 2010	LS, AM	Rare plant survey

Appendix B

PLANT SPECIES OBSERVED

Appendix B
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
GNETALES - GYMNOSPERMS		
Ephedraceae	*Ephedra californica*	California ephedra
	Ephedra nevadensis	Nevada ephedra
	Ephedra trifurca	three-fork ephedra
ANGIOSPERMS - DICOTS		
Acanthaceae	*Justicia californica*	chuparosa
Amaranthaceae	*Atriplex canescens* ssp. *canescens*	four-wing saltbush
	Atriplex hymenelytra	desert-holly
	Atriplex polycarpa	many-fruit saltbush
	*Chenopodium murale**	nettle-leaf goosefoot
	*Salsola tragus**	Russian thistle
	Tidestromia suffruticosa var. *oblongifolia*	Salton Sea honeysweet
Apiaceae	*Apium angustifolium*	mock-parsley
Apocynaceae	*Asclepias albicans*	white-stem milkweed
	Asclepias subulata	rush milkweed
	Cynanchum utahense†	deboltia
	Sarcostemma hirtellum	trailing townula
Apodanthaceae	*Pilostyles thurberi*†	Thurber's pilostyles
Asteraceae	*Adenophyllum porophylloides*	San Felipe dyssodia
	Ambrosia dumosa	white bur-sage
	Ambrosia salsola var. *salsola*	cheesebush
	Bebbia juncea var. *aspera*	rush sweetbush
	Brickellia frutescens	rigid brickellbush
	Calycoseris wrightii	white tack-stem
	Chaenactis carphoclinia var. *carphoclina*	pebble pincushion
	Chaenactis fremontii	desert pincushion
	Chaenactis stevioides	Esteve's pincushion
	Dicoria canescens	desert dicoria
	Encelia farinosa var. *farinosa*	brittlebush
	Encelia frutescens	rayless encelia
	Eriophyllum wallacei	Wallace's woolly daisy
	Geraea canescens	desert sunflower
	Gutierrezia sarothrae	broom matchweed

Appendix B (cont.)
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS – DICOTS (cont.)		
Asteraceae (cont.)		
	Isocoma acradenia var. *eremophila*	desert alkali goldenbush
	*Lactuca serriola**	prickly-lettuce
	Logfia (*Filago*) *depressa*	dwarf filago
	Logfia filaginoides (*Filago californica*)	California filago
	Malacothrix glabrata	desert dandelion
	Malperia tenuis†	brown turbans
	Monoptilon bellioides	Mohave desert star
	Palafoxia arida var. *arida*	desert Spanish-needle
	Perityle emoryi	Emory's rock daisy
	Pectis papposa var. *papposa*	cinch weed
	Pleurocoronis pluriseta	desert arrow-leaf
	Psathyrotes ramosissima	turtleback
	Rafinesquia neomexicana	desert chicory
	Senecio mohavensis	Mojave groundsel
	Stephanomeria exigua ssp. *exigua*	small wreath-plant
	Stephanomeria pauciflora var. *pauciflora*	few-flower wreath plant
	Trichoptilium incisum	desert yellow-head
	Trixis californica var. *californica*	California trixis
Bignoniaceae	*Chilopsis linearis* ssp. *arcuata*	desert-willow
Boraginaceae	*Amsinckia tesselata* var. *tesselata*	checker fiddleneck
	Cryptantha angustifolia	narrow-leaf cryptantha
	Cryptantha barbigera	bearded cryptantha
	Cryptantha maritima	white-hair cryptantha
	Cryptantha micrantha ssp. *micrantha*	purple-root crytantha
	Cryptantha nevadensis	Nevada cryptantha
	Cryptantha pectocarya var. *pectocarya*	single-wing cryptantha
	Cryptantha racemosa	woody cryptantha
	Cryptantha recurvata	recurved cryptantha
	Pectocarya heterocarpa	chuckwalla pectocarya
	Pectocarya platycarpa	broad-fruit pectocarya
	Pectocarya recurvata	recurved pectocarya
Brassicaceae	*Brassica tournefortii**	Saharan mustard
	Caulanthus cooperi	Cooper's caulanthus
	Descurainia pinnata	tansy-mustard

Appendix B (cont.)
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS – DICOTS (cont.)		
Brassicaceae (cont.)		
	Dithyrea californica	California spectacle-pod
	Draba cuneifolia	desert whitlow
	Guillenia lasiophylla	California mustard
	Lepidium lasiocarpum var. *lasiocarpum*	sand peppergrass
	*Raphanus raphanistrum**	jointed charlock
	*Sisymbrium irio**	London rocket
Cactaceae	*Cylindropuntia bigelovii*	teddy-bear cholla
	Cylindropuntia echinocarpa	silver cholla
	Cylindropuntia ramosissima	pencil cholla
	Cylindropuntia wolfii†	Wolf's cholla
	Echinocereus engelmannii	Engelmann's hedgehog cactus
	Ferocactus cylindraceus	California barrel cactus
	Mammilaria dioica	fish-hook cactus
	Mammilaria tetrancistra	Yaqui mammilaria
	Opuntia basilaris var. *basilaris*	beavertail cactus
Campanulaceae	*Nemacladus glandulifera* var. *orientalis*	eastern glandular threadplant
	Nemacladus pinnatifidus	comb-leaf threadplant
	Nemacladus sigmoideus	small-flower threadplant
Capparaceae	*Isomeria arborea*	bladderpod
	Wislizenia refracta ssp. *refracta*†	Jack ass-clover
Caryophyllaceae	*Achyronychia cooperi*	frost mat
Convolvulaceae	*Cuscuta* sp.	dodder
Cucurbitaceae	*Cucurbita palmata*	coyote melon
Ehretiaceae	*Tiquilia palmeri*	Palmer's coldenia
	Tiquilia plicata	plicate coldenia
Euphorbiaceae	*Chamaesyce albomarginata*	white-margin sandmat
	Chamaesyce melanadenia	rattlesnake spurge
	Chamaesyce micromera	Sonora sandmat
	Chamaesyce pediculifera	louse spurge
	Chamaesyce polycarpa	small-seed sandmat
	Chamaesyce setiloba	Yuma spurge

Appendix B (cont.)
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS – DICOTS (cont.)		
Euphorbiaceae (cont.)		
	Croton californicus	California croton
	Ditaxis lanceolata	desert silverbush
	Ditaxis neomexicana	New Mexico ditaxis
	Stillingia linearifolia	linear-leaf stillingia
	Stillingia spinulosa	annual stillingia
Fabaceae	*Acacia greggii*	catclaw acacia
	Astragalus insularis var. *harwoodii*†	Harwood's milk-vetch
	Astragalus nuttallianus	milk-vetch
	Caesalpinia virgata	desert bird-of-paradise
	Cercidium floridum ssp. *floridum*	blue palo verde
	Dalea mollis	hairy prairie clover
	Dalea mollissima	soft prairie clover
	Lotus haydonii†	Haydon's lotus
	Lotus scoparius var. *brevialatus*	short-wind deerweed
	Lotus strigosus	strigose lotus
	Lotus wrangelianus	calf lotus
	Lupinus arizonicus	Arizona lupine
	Lupinus concinnus	bajada lupine
	Lupinus excubitus var. *medius*†	Mountain Springs bush lupine
	Psorothamnus emoryi var. *emoryi*	white dalea
	Psorothamus schottii	indigo bush
	Psorothamnus spinosus	smoke tree
	Senna armata	spiny senna
Fouquieriaceae	*Fouquieria splendens* ssp. *splendens*	ocotillo
Geraniaceae	*Erodium cicutarium**	red-stem filaree
	Erodium texanum	desert filaree
Hydrophyllaceae	*Emmenanthe penduliflora*	whispering bells
	Eucrypta micrantha	small-flower eucrypta
	Heliotropium curassavicum	salt heliotrope
	Nama demissum var. *demissum*	purple mat
	Phacelia cicutaria var. *hispida*	caterpillar phacelia
	Phacelia crenulata var. *minutiflora*	cleft-leaf phacelia
	Phacelia distans	wild heliotrope
	Phacelia neglecta	alkali phacelia
	Phacelia pedicellata	spector phacelia

Appendix B (cont.)
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS – DICOTS (cont.)		
Krameriaceae	*Krameria erecta*	purple-heather
	Krameria grayi	white rhatany
Lamiaceae	*Hyptis emoryi*	desert lavender
	Salvia columbariae	chia
	Salvia vaseyi	wand sage
Lennoaceae	*Pholisma arenarium*	sand plant
Loasaceae	*Mentzelia affinis*	hydra stick-leaf
	Mentzelia albicaulis	kuha
	Mentzelia desertorum	desert stick-leaf
	Mentzelia hirsutissima†	hairy stick-leaf
	Mentzelia involucrata	sand blazing star
	Petalonyx thurberi ssp. *thurberi*	Thurber's sandpaper plant
Malvaceae	*Eremalche rotundifolia*	desert five-spot
	Hibiscus denudatus	rock hibiscus
	Sphaeralcea ambigua var. *rosacea*	rose desert mallow
Martyniaceae	*Proboscidea althaeifolia*†	desert unicorn plant
Nyctaginaceae	*Abronia villosa* var. *villosa*	desert sand verbena
	Allionia incarnata var. *villosa*	trailing windmills
	Mirabilis laevis var. *retrorsa*	desert wishbone plant
	Mirabilis laevis var. *villosa*	hairy wishbone plant
	Mirabilis tenuiloba†	long-lobed four o'clock
Oleaceae	*Menodora scoparia*	broom twinberry
Onagraceae	*Camissonia boothii* ssp. *condensata*	desert lantern
	Camissonia californica	false-mustard
	Camissonia cardiophylla ssp. *cardiophylla*	
	Camissonia claviformis ssp. *peirsonii*	Peirson's evening primrose
	Camissonia pallida ssp. *pallida*	pale yellow sun cup
Orobanchaceae	*Orobanche parishii* var. *parishii*	Parish's broom-rape
Papaveraceae	*Eschscholzia glyptosperma*	desert gold-poppy
	Eschscholzia minutiflora	pygmy gold-poppy
	Eschscholzia parishii	Parish's gold-poppy
Phrymaceae	*Mimulus bigelovii* var. *bigelovii*	Bigelow's monkey flower
Plantaginaceae	*Antirrhinum filipes*	desert snapdragon
	Mohavea confertiflora	ghost flower
	Plantago ovata	woolly plantain

Appendix B (cont.)
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS – DICOTS (cont.)		
Polemoniaceae	*Aliciella latifolia* ssp. *latifolia*	broad-leaf gilia
	Eriastrum diffusum	miniature woolly-star
	Eriastrum eremicum ssp. *eremicum*	desert woolly-star
	Gilia latifolia	broad-flower gilia
	Gilia stellata	star gilia
	Langloisia setosissima ssp. *setosissima*	bristly langloisia
	Leptosiphon aureus ssp. *decorus*	white desert gold
	Linanthus bigelovii	Bigelow's linanthus
	Linanthus jonesii	Jones's linanthus
	Linanthus maculatus†	little San Bernardino Mountains linanthus
	Loeseliastrum matthewsii	desert calico
	Loeseliastrum schottii	Schott's calico
Polygonaceae	*Chorizanthe brevicornu*	brittle spineflower
	Chorizanthe corrugata	corrugate spineflower
	Chorizanthe rigida	rigid spineflower
	Eriogonum deflexum var. *deflexum*	desert skeleton weed
	Eriogonum fasciculatum var. *polifolium*	foothill buckwheat
	Eriogonum inflatum	desert trumpet
	Eriogonum reniforme	kidney-leaf buckwheat
	Eriogonum thomasii	Thomas's buckwheat
	Eriogonum tricopes	little trumpet
	Eriogonum wrightii var. *nodosum*	knotty buckwheat
	Pterostegia drymarioides	granny's hairnet
Portulaceae	*Calandrinia ambigua*	desert pot-herb
	Calyptridium monandrum	common calyptridium
Ranunculaceae	*Delphinium parishii* ssp. *subglobosum*†	Colorado desert larkspur
Resedaceae	*Oligomeris linifolia*	narrow-leaf oligomeris
Rubiaceae	*Galium stellatum* var. *eremicum*	desert bedstraw
Rutaceae	*Thamnosma montana*	turpentine-broom
Simmondsiaceae	*Simmondsia chinensis*	jojoba
Solanaceae	*Datura discolor*	desert thornapple
	Datura wrightii	western jimson weed
	Lycium andersonii	Anderson's desert-thorn
	Nicotiana obtusifolia	desert tobacco
	Physalis crassifolia	Greene's ground-cherry
Tamaricaceae	*Tamarix aphylla**	athel tamarisk

Appendix B (cont.)
PLANT SPECIES OBSERVED – OCOTILLO WIND ENERGY FACILITY

FAMILY	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS – DICOTS (cont.)		
Urticaceae	*Parietaria pensylvanica*	Pennsylvania pellitory
Viscaceae	*Phoradendron californicum*	desert mistletoe
Zygophyllaceae	*Fagonia laevis*	California fagonia
	Fagonia pachyacantha	sticky fagonia
	Kallstroemia californica	California caltrop
	Larrea tridentata	creosote bush
	*Tribulus terrestris**	puncture vine
ANGIOSPERMS - MONOCOTS		
Agavaceae	*Agave deserti*	desert yucca
	Hesperocallis undulata	desert lily
Liliaceae	*Nolina parryi*	Parry's bear-grass
Poaceae	*Acnatherum speciosum*	desert needlegrass
	Aristida adscensionis	six-weeks three-awn
	Aristida purpurea	purple three-awn
	*Avena barbata**	slender wild oat
	Bromus madritensis ssp. *rubens**	red brome
	Hilaria (*Pleuraphis*) *rigida*	galleta grass
	*Schismus barbatus**	Common Mediterranean grass
	*Vulpia bromoides**	six-weeks fescue
	Vulpia octoflora var. *octoflora*	slender fescue
	*Vulpia myuros**	rattail fescue
Themidaceae	*Dichelostemma capitatum* ssp. *capitatum*	blue dicks
PTERIDOPHYTES		
Pteridaceae	*Cheilanthes viscida*	viscid lip fern
	Pentagramma triangularis ssp. *maxonii*	Maxon's silverback fern

*Non-native species
†Sensitive species

Appendix C

ANIMAL SPECIES OBSERVED OR DETECTED

Appendix C
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
INVERTEBRATES		
Class Insecta		
Order Blattodea		
Termitidae	*Gnathamitermes perplexus*	Encrusting Termites
Order Coleoptera		
Coccinellidae	*Coccinella septempunctata*	Seven-spot Ladybird
Curculionidae	*Ophryastes argentata*	Silver Twig Beetle
Meloidae	*Cysteodemus armatus*	Desert Spider Beetle
Meloidae	*Lytta auriculata*	Red-eared Blister Beetle
Meloidae	*Lytta magista*	Master Blister Beetle
Meloidae	*Lytta stygica*	Blister Beetle
Meloidae	*Pleuropasta mirabilis*	Blister Beetle
Meloidae	*Tegrodera aloga*	Iron Cross Beetle
Tenebrionidae	*Eleodes* sp.	Darkling Beetle
Tenebrionidae	*Eleodes dentipes*	Dentate Stink Beetle
Order Hymenoptera		
Apidae	*Apis mellifera*	Honey Bee
Formicidae	*Dorymyrmex bicolor*	Brittlebush Ant
Formicidae	*Messor pergandei*	Desert Harvester Beetle
Formicidae	*Messor* sp.	Smooth Harvester Beetle
Formicidae	*Pheidole xerophila*	Big-headed Beetle
Formicidae	*Pogonomyrmex* sp.	Harvester Ant
Megachilidae	*Magachile* sp.	Leafcutter Bee
Mutillidae	--	Velvet Beetle
Mutillidae	*Dasymutilla gloriosa*	Thistledown Velvet Beetle
Pompilidae	*Pepsis* sp.	Tarantula Hawk
Order Lepidoptera		
Danainae	*Danaus giippus strigosus*	Striated Queen Butterfly
Lycaenidae	*Atlides halesus*	Great Purple Hairstreak
Nymphalidae	*Chlosyne californica*	California Patch
Nymphalidae	*Phyciodes mylitta*	Mylitta Crescent
Nymphalidae	*Vanessa cardui*	Painted Lady Butterfly
Papilionidae	*Papilio indra*	Indra Swallowtail Butterfly
Pieridae	*Anthocharis cethura cethura*	Desert Orangetip Butterfly
Pieridae	*Nathalis iole*	Dainty Sulphur
Theclinae	*Strymon melinus*	Gray Hairstreak Butterfly

Appendix C
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
INVERTEBRATES (cont.)		
Order Mantodea		
Mantida	--	Praying Mantis
Order Orthoptera		
Acrididae	*Trimerotropis pallidipennis*	Pallid-winged Grasshopper
Class Arachnida		
Order Mygalomorphae		
Theraphosidae	*Aphonopelma* sp.	Tarantula
Order Solifugae		
Solpugidae	--	Solifugid
VERTEBRATES		
Class Aves		
Accipitridae	*Accipiter cooperii*†	Cooper's Hawk
Accipitridae	*Aquila chrysaetos*†	Golden Eagle
Accipitridae	*Accipiter striatus*†	Sharp-shinned Hawk
Accipitridae	*Buteo jamaicensis*	Red-tailed Hawk
Accipitridae	*Buteo regalis*†	Ferruginous Hawk
Accipitridae	*Buteo swainsoni*†	Swainson's Hawk
Accipitridae	*Circus cyaneus*†	Northern Harrier
Alaudidae	*Eremophila alpestris*	Horned Lark
Anatidae	*Branta bernicla*†	Brant Goose
Apodidae	*Aeronautes saxatalis*	White-throated Swift
Apodidae	*Chaetura vauxi*†	Vaux's Swift
Caprimulgidae	*Chordeiles acutipennis*	Lesser Nighthawk
Cardinalidae	*Passerina amoena*	Lazuli Bunting
Cardinalidae	*Passerina caerulea*	Blue Grosbeak
Cardinalidae	*Pheucticus melanocephalus*	Black-headed Grosbeak
Cardinalidae	*Piranga bidentata*	Flame-colored Tanager
Cardinalidae	*Piranga ludoviciana*	Western Tanager
Cathartidae	*Cathartes aura*	Turkey Vulture
Columbidae	*Columba livia*	Rock Dove
Columbidae	*Columbina passerine*	Common Ground-Dove
Columbidae	*Streptopelia decaocto*	Eurasian Collored-Dove

Appendix C (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
VERTEBRATES (cont.)		
Class Aves (cont.)		
Columbidae	*Zenaida asiatica*	White-winged Dove
Columbidae	*Zenaida macroura*	Mourning Dove
Corvidae	*Corvus brachyrhynchos*	American Crow
Corvidae	*Corvus corax*	Common Raven
Cuculidae	*Geococcyx californianus*	Greater Roadrunner
Emberizidae	*Amphispiza belli*	Sage Sparrow
Emberizidae	*Amphispiza bilineata*	Black-throated Sparrow
Emberizidae	*Chondestes grammacus*	Lark Sparrow
Emberizidae	*Spizella breweri*†	Brewer's Sparrow
Emberizidae	*Spizella passerina*	Chipping Sparrow
Emberizidae	*Zonotrichia leucophrys*	White-crowned Sparrow
Falconidae	*Falco columbarius*†	Merlin
Falconidae	*Falco mexicanus*†	Prairie Falcon
Falconidae	*Falco sparverius*	American Kestrel
Fringillidae	*Carduelis psaltria*	Lesser Goldfinch
Fringillidae	*Carpodacus mexicanus*	House Finch
Hirundinidae	*Hirundo rustica*	Barn Swallow
Hirundinidae	*Petrochelidon pyrrhonota*	Cliff Swallow
Hirundinidae	*Stelgidopteryx serripennis*	Northern rough-winged Swallow
Hirundinidae	*Tachycineta bicolor*	Tree Swallow
Hirundininae	*Tachycineta thalassina*	Violet-green Swallow
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird
Icteridae	*Icterus bullockii*	Bullock's Oriole
Icteridae	*Icterus cucullatus*	Hooded Oriole
Icteridae	*Quiscalus mexicanus*	Great-tailed Grackle
Icteridae	*Sturnella neglecta*	Western Meadowlark
Laniidae	*Lanius ludovicianus*†	Loggerhead Shrike
Mimidae	*Mimus polyglottos*	Northern Mockingbird
Mimidae	*Toxostoma lecontei*†	Le Conte's Thrasher
Motacillidae	*Anthus rubescens*	American Pipit
Pandionidae	*Pandion haliaetus*†	Osprey

Appendix C (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
VERTEBRATES (cont.)		
Class Aves (cont.)		
Parulidae	*Dendroica coronata*	Yellow-rumped Warbler
Parulidae	*Dendroica petechia brewsteri*†	Yellow Warbler
Parulidae	*Dendroica nigrescens*	Black-throated Gray Warbler
Parulidae	*Dendroica townsendi*	Townsend's Warbler
Parulidae	*Geothlypis trichas*	Common Yellowthroat
Parulidae	*Vermivora celata*	Orange-crowned Warbler
Parulidae	*Vermivora ruficapilla*	Nashville Warbler
Parulidae	*Wilsonia pusilla*	Wilson's Warbler
Picidae	*Colaptes auratus*	Northern Flicker
Picidae	*Picoides scalaris*	Ladder-backed Woodpecker
Procellariidae	*Puffinus nativitatis*	Christmas Shearwater
Ptilogonatidae	*Phainopepla nitens*	Phainopepla
Remizidae	*Auriparus flaviceps*	Verdin
Strigidae	*Asio otus*†	Long-eared Owl
Strigidae	*Athene cunicularia*†	Burrowing Owl
Sylviidae	*Polioptila caerulea*	Blue-gray Gnatcatcher
Sylviidae	*Polioptila melanura*	Black-tailed Gnatcatcher
Trochilidae	*Archilochus alexandri*	Black-chinned Hummingbird
Trochilidae	*Calypte anna*	Anna's Hummingbird
Trochilidae	*Calypte costae*	Costa's Hummingbird
Troglodytidae	*Campylorhynchus brunneicapillus*	Cactus Wren
Troglodytidae	*Catherpes mexicanus*	Canyon Wren
Troglodytidae	*Oreoscoptes montanus*	Sage Thrasher
Troglodytidae	*Salpinctes obsoletus*	Rock Wren
Troglodytidae	*Thryomanes bewickii*	Bewick's Wren
Tyrannidae	*Empidonax difficilis*	Pacific-Slope Flycatcher
Tyrannidae	*Empidonax traillii*	Willow flycatcher
Tyrannidae	*Empidonax wrightii*	Gray Flycatcher
Tyrannidae	*Myiarchus cinerascens*	Ash-throat Flycatcher
Tyrannidae	*Sayornis nigricans*	Black Phoebe

Appendix C (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
VERTEBRATES (cont.)		
Class Aves (cont.)		
Tyrannidae	*Sayornis saya*	Say's Phoebe
Tyrannidae	*Tyrannus verticalis*	Western Kingbird
Tyrannidae	*Tyrannus vociferans*	Cassin's Kingbird
Vireonidae	*Vireo gilvus*	Warbling Vireo
Class Mammalia		
Order Artiodactyla		
Bovidae	*Ovis canadensis nelsoni*†	Peninsular Bighorn Sheep (Distinct Population Segment)
Bovidae	*Ovis canadensis nelsoni*	Nelson's Bighorn Sheep
Order Carnivora		
Canidae	*Canis latrans mearnsi*	Mearns Coyote
Canidae	*Canis lupus familiaris*	Domestic Dog
Canidae	*Urocyon cinereoargenteus scottii*	Gray Fox
Canidae	*Vulpes macrotis arsipus*	Desert Kit Fox
Felidae	*Lynx rufus baileyi*	Bobcat
Mustelidae	*Taxidea taxus*†	American Badger
Order Chiroptera		
Molossidae	*Eumops perotis*	Greater Western Mastiff Bat
Molossidae	*Tadarida brasiliensis*	Mexican Free-tailed Bat
Vespertilionidae	*Eptesicus fuscus*	Big Brown Bat
Vespertilionidae	*Myotis californicus*	California Myotis
Vespertilionidae	*Pipistrellus hesperus*	Western Pipistrelle
Order Rodentia		
Heteromyidae	*Dipodomys deserti*	Desert Kangaroo Rat
Heteromyidae	*Dipodomys merriami*	Merriam's Kangaroo Rat
Heteromyidae	*Perognathus longimembris*	Little Pocket Mouse
Leporidae	*Lepus californicus deserticola*	Black-tailed Jackrabbit
Leporidae	*Sylvilagus auduboni arizonae*	Desert Cottontail
Muridae	*Neotoma lepida*	Desert Woodrat
Muridae	*Neotoma* sp.	Woodrat

Appendix C (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
VERTEBRATES (cont.)		
Class Mammalia (cont.)		
Order Artiodactyla (cont.)		
Muridae	*Peromyscus* sp.	Mouse
Sciuridae	*Ammospermophilus leucurus leucurus*	White-tailed Antelope Squirrel
Sciuridae	*Spermophilus tereticaudus*	Round-tailed Ground Squirrel
Class Reptilia		
Order Squamata		
Boidae	*Charina trivirgata*†	Rosy Boa
Colubridae	*Arizona elegans eburnata*	Desert Glossy Snake
Colubridae	*Chionactis occipitalis*	Shovelnose Snake
Colubridae	*Chilomeniscus stramineus*	Variable Sandsnake
Colubridae	*Hypsiglena torquata*	Night Snake
Colubridae	*Masticophis flagellum piceus*	Red Coachwhip
Colubridae	*Phyllorhynchus decurtatus*	Leafnose Snake
Colubridae	*Rhinocheilus lecontei*	Longnose Snake
Colubridae	*Salvadora hexalepis hexalepis*	Desert Patch-nosed Snake
Colubridae	*Trimorphodon biscutatus*	Lyre Snake
Crotaphytidae	*Gambelia wislizenii*	Long-nosed Leopard Lizard
Gekkonidae	*Coleonyx variegates variegatus*	Desert Banded Gecko
Gekkonidae	*Phyllodactylus xanti*	Leaf-toed Gecko
Iguanidae	*Dipsosaurus dorsalis*	Desert Iguana
Iguanidae	*Sauromalus ater*	Chuckwalla
Phrynosomatidae	*Callisaurus draconoides*	Zebra-tailed Lizard
Phrynosomatidae	*Petrosaurus mearnsi*	Banded Rock Lizard
Phrynosomatidae	*Phrynosoma mcallii*†	Flat-tailed Horned Lizard
Phrynosomatidae	*Phrynosoma platyrhinos calidiarum*	Southern Desert Horned Lizard
Phrynosomatidae	*Sceloporus magister*	Desert Spiny Lizard
Phrynosomatidae	*Sceloporus orcutti*	Granite Spiny Lizard
Phrynosomatidae	*Urosaurus graciosus*	Long-tailed Brush Lizard
Phrynosomatidae	*Urosaurus nigricaudus*	Black-tailed Brush Lizard
Phrynosomatidae	*Uta stansburiana*	Common Side-blotched Lizard

Appendix C (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

ORDER/FAMILY	SCIENTIFIC NAME	COMMON NAME
VERTEBRATES (cont.)		
Class Reptilia (cont.)		
Order Squamata (cont.)		
Teiidae	*Aspidoscelis tigris tigris*	Great Basin Whiptail
Teiidae	*Aspidoscelis tigris*	Western Whiptail
Viperidae	*Crotalus cerastes cercobombu*	Sonoran Desert Sidewinder
Viperidae	*Crotalus cerastes laterorepens*	Colorado Desert Sidewinder
Viperidae	*Crotalus mitchellii*	Speckled Rattlesnake
Viperidae	*Crotalus ruber*	Red Diamond Rattlesnake
Xantusiinae	*Xantusia henshawi*	Granite Night Lizard

Appendix D

SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Appendix D
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Abronia villosa var. *aurita* Chaparral sand verbena	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Annual herb growing on sandy floodplains or flats in generally inland, arid areas of sage scrub and open chaparral; 240-4,800 ft.	January to September	None. Not known from desert. Previous records of it in vicinity were misidentified.	Not observed.
Amaranthus watsonii Watson's amaranth	Federal – None State – None BLM – None CRPR – 4.3	Annual herb that occurs in Mojavean and Sonoran desert scrubs; 60-5,100 ft.	April to September	Moderate. Suitable habitat occurs on site.	Not observed.
Astragalus insularis* var. *harwoodii **Harwood's milk-vetch**	**Federal – None State – None BLM – None CRPR – 2.2**	**Annual herb that occurs in sand and gravelly desert dune areas; <1,000 ft.**	**January to May**	**Present.**	**Approximately 32 individuals were observed in creosote bush scrub, primarily in the northeast portion of the survey area.**
Ayenia compacta California ayenia	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb occurring in dry, rocky canyons in Sonoran desert scrub; 450-3,300 ft.	March to April	Moderate. Suitable habitat occurs on site.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Bursera microphylla Elephant tree	Federal – None State – None BLM – None CRPR – 2.3	Deciduous tree found on rocky slopes in Sonoran desert scrub; 600-2,100 ft.	June to July	Moderate. Although portions of the site support suitable rocky habitat, this species is hard to miss and would likely have been observed if present.	Not observed.
Calliandra eriophylla Pink fairy-duster	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub occurring in sandy or rocky areas in Sonoran desert scrub; 380-4,500 ft.	January to March	Moderate. Although the site supports suitable habitat, this species would likely have been observed if present.	Not observed.
Camissonia arenaria Sand evening primrose	Federal – None State – None BLM – None CRPR – 2.3	Annual or bushy perennial found in sandy or rocky areas in Sonoran desert scrub; 0-3,000 ft.	November to May	Moderate. Although the site supports suitable habitat, this species would likely have been observed if present.	Not observed.
Castela emoryi Crucifixion thorn	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub that occurs in Sonoran desert scrub, playas, and on gravelly soils; 280-2,000 ft.	April to July	Moderate. Although the site supports suitable habitat, this species is hard to miss and would likely have been observed if present.	Not observed.
Chaenactis carphoclinia var. *peirsonii* Pierson pincushion	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Annual herb occurring in sandy areas in Sonoran desert scrub; 0-1,500 ft.	March to April	Moderate. Site supports suitable habitat.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Chamaesyce abramsiana Abram's chamaesyce	Federal – None State – None BLM – None CRPR – 2.2	Annual herb found in sandy soils in desert scrub; 0-2,800 ft.	September to November	Moderate. Suitable habitat occurs on site.	Not observed.
Chamaesyce platysperma Flat-seeded spurge	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Annual herb that occurs in desert dunes and Sonoran Desert scrub with sandy soil.	February to September	Moderate. Suitable habitat occurs on site.	Not observed.
Colubrina californica Las Animas colubrina	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub that occurs in creosote bush scrub; < 3,000 ft.	April to June	Moderate. Suitable habitat occurs on site.	Not observed.
Condalia globosa var. *pubescens* Spiny abrojo	Federal – None State – None BLM – None CRPR – 4.2	Deciduous shrub that occurs in Sonoran desert scrub; 450-3,000 ft.	March to May	Moderate. Suitable habitat occurs on site.	Not observed.
Coryphantha alversonii Foxtail cactus	Federal – None State – None BLM – None CRPR – 4.3	A California-endemic stem succulent that occurs in Sonoran desert scrub, in sandy or rocky areas, usually granitic; 225-4,500 ft.	April to June	Moderate. Suitable habitat occurs on site.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Croton wigginsii Wiggins' croton	Federal – None State – None BLM – None CRPR – 2.2	Shrub or subshrub associated with sand dunes in Sonoran desert scrub; 150-300 ft.	March to May	Low. Although portions of the site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.
Cylindropuntia wolfii **Wolf's cholla**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.3**	**A stem succulent occurring in dry places above valley floors in Sonoran desert scrub; 300-3,600 ft.**	**March to May**	**Present.**	**Approximately 24,735individuals observed in numerous desert scrub habitats throughout the entire western half of the survey area and north-central portion of the survey area.**
Cylindropuntia wigginsii Wiggins' cholla	Federal – None State – None BLM – None CRPR – 3.3	A stem succulent occurring in sandy areas in Sonoran desert scrub; 90-2,700 ft.	March	Moderate. Suitable habitat occurs on site.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Cynanchum utahense **Deboltia**	**Federal – None** **State – None** **BLM – None** **CRPR – 4.2**	**Dry, sandy, or gravelly areas in Sonoran desert scrub and Mojavean desert scrub are general habitats utilized by this vine-like perennial herb. Elevation range is 450 to 4,300 ft.**	**April to June**	**Present.**	**Approximately 557 individuals observed in sandy washes occurring within various desert scrub habitats, primarily in the western portion of the survey area, in addition to the southeastern corner.**
Delphinium parishii ssp. *subglobosum* Parish's larkspur	Federal – None State – None BLM – None CRPR – 4.3	Dry, stony fans and slopes associated with creosote bush scrub, chaparral, or pinyon-juniper woodland in open Sonoran desert scrub; 1,800-5,400 ft.	March to June	Moderate. Species occurs south of the site.	Not observed.
Ditaxis serrata var. *californica* California ditaxis	Federal – None State – None BLM – None CRPR – 3.2	Perennial herb found in rocky desert chaparral and Sonoran desert scrub; < 3,000 ft.	March to December	Moderate. Suitable habitat occurs on site.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Eucnide rupestris Annual rock nettle	Federal – None State – None BLM - None CRPR – 2.2	Annual herb that occurs in Sonoran desert scrub on rock or talus substrate; 1,500-1,800 ft.	December to April	Moderate. Suitable habitat occurs on site.	Not observed.
Helianthus niveus ssp. *tephrodes* Algodones Dunes sunflower	Federal – None State – Endangered BLM - Sensitive CRPR – 1B.2	Shrubby perennial found in open, sandy places; dunes; 150-300 ft.	September to May	Low. Although portions of the site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.
Horsfordia alata Pink velvetmallow	Federal – None State – None BLM - None CRPR – 4.3	Shrub occurring in rocky canyons and washes; 300-1,800 ft.	February to December	Low to moderate. Some suitable habitat present on site.	Not observed.
Horsfordia newberryi Newberry's velvetmallow	Federal – None State – None BLM - None CRPR – 4.3	Shrub occurring in creosote bush scrub; < 2,400 ft.	February to December	Moderate. Suitable habitat occurs on site; however, species would likely have been observed if present.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Imperata brevifolia California satintail	Federal – None State – None BLM – None CRPR – 2.1	Rhizomatous grass found in chaparral, coastal scrub; desert scrub; alkaline meadows and seeps, and riparian scrub; 0-1,500 ft.	September to May	Low. This large, rhizomatous grass grows in arid areas where water is available. No suitable habitat occurs on site.	Not observed.
Ipomopsis effusa Baja California ipomopsis	Federal – None State – None BLM – None CRPR – 2.1	Annual herb that occurs in chaparral, Sonoran desert scrub (alluvial fan) in sandy substrate; < 300 ft.	April to June	Moderate. Suitable habitat occurs on site.	Not observed.
Ipomopsis tenuifolia Slender-leaved ipomopsis	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb that occurs in chaparral, pinyon and juniper woodlands, and Sonoran desert scrub on rocky or gravelly soil between 300 and 3,600 ft.	March to May	Moderate. Suitable habitat occurs on site; however, species would likely have been observed if present.	Not observed.

Appendix D (cont.)

SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Juncus cooperi Cooper's rush	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found in alkaline areas, meadows and seeps; < 5,000 ft.	April to May	Low. Suitable habitat not present on site.	Not observed.
Linanthus maculatus **Little San Bernardino Mountains linanthus**	**Federal – None** **State – None** **BLM – Sensitive** **CRPR – 1B.2**	**A small annual herb that grows in very loose soft sand on low benches along washes in Mojave and Sonoran desert scrub from 600 to 6,900 ft.**	**March to May**	**Present.**	**Approximately 100 individuals were observed in cheesebush scrub in the western portion of the survey area.**
Lotus haydonii **Haydon's lotus**	**Federal – None** **State – None** **BLM – None** **CRPR – 2.3**	**A diminutive perennial herb that grows on dry, rocky slopes in Sonoran desert scrub between 1,500 and 3,600 ft.**	**January to June**	**Present.**	**Approximately 19 individuals were observed primarily in rocky habitat in the southwestern portion of the survey area.**

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Lupinus excubitus* var. *medius **Mountain Springs bush lupine**	**Federal – None** **State – None** **BLM – Sensitive** **CNPS – 1B.3**	**Perennial subshrub that occurs in sandy desert washes in pinyon and juniper woodland and Sonoran desert scrub between 1,300-4,100 ft.**	**March to May**	**Present.**	**A single individual was observed along the edge of the central portion of the survey area.**
Lycium parishii Parish's desert-thorn	Federal – None State – None BLM – None CRPR – 2.3	Shrub found on sandy to rocky slopes, canyons; < 3,000 ft.	March to April	Moderate. Suitable habitat occurs on site.	Not observed.
Lyrocarpa coulteri var. *palmeri* Coulter's lyrepod	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found on dry slopes, gravelly flats, washes in Sonoran desert scrub; < 1,800 ft.	December to April	Moderate. Suitable habitat occurs on site.	Not observed.
Malperia tenuis **Brown turbans**	**Federal – None** **State – None** **BLM – None** **CRPR – 2.3**	**Annual herb that occurs in Sonoran Desert scrub with sandy soil; <1,500 ft.**	**March to April**	**Present.**	Approximately 846,173 **individuals observed in various desert scrub habitats in the eastern and western portions of the survey area.**

SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Mentzelia hirsutissima **Hairy stick-leaf**	**Federal – None State – None BLM – None CRPR – 2.3**	**Occurs in rocky Sonoran desert scrub between 0 and 2,100 ft.**	**March to May**	**Present.**	**Approximately 89 individuals observed in creosote and brittlebush scrubs in the central portion of the survey area.**
Mirabilis tenuiloba **Long-lobed four o'clock**	**Federal – None State – None BLM – None CRPR – 4.3**	**A perennial herb found in Sonoran desert scrub on sandy, gravelly, or rocky slopes. Known sites are xeric but relatively well-protected locales near boulders. Elevation range is 900 to 3,300 ft.**	**March to May**	**Present.**	**Approximately 308 individuals observed primarily in the southeastern corner of the survey area, along with other scattered occurrences in the central and western portions of the survey area.**
Nemacaulis denudata var. gracilis Slender woollyheads	Federal – None State – None BLM – None CRPR – 2.2	Annual herb that occurs in coastal dunes, desert dunes, Sonoran desert scrub between 150 and 1,200 ft.	March to May	Moderate. Suitable habitat occurs on site.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Palafoxia arida var. *gigantea* Giant Spanish needle	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Annual/perennial herb found on desert dunes; 45-300 ft.	February to May	Low. Suitable dune habitat does not occur on site.	Not observed.
Penstemon clevelandii var. *connatus* San Jacinto beardtongue	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found on rocky hillsides, rock crevices in creosote bush scrub, juniper/pinyon woodland, chaparral; 1,200 to 4,500 ft.	March to May	Low to moderate. Some suitable habitat occurs on site.	Not observed.
Penstemon thurberi Thurber's beardtongue	Federal – None State – None BLM – None CRPR – 4.2	Perennial herb found on sandy and gravelly slopes and mesas in chaparral, pinyon/juniper woodland, and Sonoran desert scrub; 1,500 to 3,600 ft.	May to July	Moderate. Suitable habitat occurs on site.	Not observed.
Pholisma sonorae Sand food	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Parasitic perennial herb found on desert dunes; 0-600 ft.	April to June	Low. Although portions of the site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Pilostyles thurberi **Thurber's pilostyles**	**Federal – None State – None BLM – None CRPR – 4.3**	**Fleshy, parasitic plant found in Sonoran desert scrub flatlands; <1,000 ft.**	**January**	**Present.**	**Observed on 318 host plants (white dalea [*Psorothamnus emoryi*]) in a variety of scrub habitats in the central and western portions of the survey area.**
Proboscidea althaeifolia **Desert unicorn plant**	**Federal – None State – None BLM – None CRPR – 4.3**	**Perennial herb found in creosote bush scrub, sandy desert scrub; 450-3,000 ft.**	**May to August**	**Present.**	**Six individuals observed in the northeastern portion of the survey area.**
Salvia greatae Orocopia sage	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Evergreen shrub found in desert scrub habitats, alluvial slopes; < 2,500 ft.	March to April	Moderate. Suitable habitat occurs on site; however, species would likely have been observed if present.	Not observed.
Senna covesii Coves' senna	Federal – None State – None BLM – None CRPR – 2.2	Perennial herb found in Sonoran desert scrub, in dry sandy washes and on slopes; 900-3,100 ft.	March to June	Moderate. Suitable habitat occurs on site.	Not observed.
Spermolepis echinata Bristly scaleseed	Federal – None State – None BLM – None CRPR – 2.3	Annual herb growing in rocky, desert terrain or on sandy flats; 180-4,500 ft.	March to April	Moderate. Suitable habitat occurs on site.	Not observed.

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Tetracoccus hallii Holly-leaved spurge	Federal – None State – None BLM – None CRPR – 4.3	Deciduous shrub found in creosote bush scrub; < 3,600 ft.	January to May	Moderate. Suitable habitat occurs on site; however, species would likely have been observed if present.	Not observed.
Teucrium cubense ssp. *depressum* Dwarf germander	Federal – None State – None BLM – None CRPR – 2.2	Annual herb found on desert dunes, edges of playas, and in Sonoran desert scrub; < 1,200 ft.	March to May	Moderate. Suitable habitat occurs on site.	Not observed.
Wislizenia refracta ssp. *palmeri* Palmer's jack-ass clover	Federal – None State – None BLM – None CRPR – 2.2	Deciduous shrub found in chenopod scrub, desert dunes, Sonoran desert scrub, and Sonoran thorn woodland; < 1,000 ft.	January to December	Moderate. Suitable habitat occurs on site.	Not observed.
Wislizenia refracta* ssp. *refracta **Jack-ass clover**	**Federal – None State – None BLM – None CRPR – 2.2**	**An annual herb occurring in desert scrub, playas, and desert dunes, particularly in sandy washes, alkaline flats, and along roadsides; 1,800-2,400 ft.**	**April to November**	**Present.**	**Approximately 25 individuals observed in the northeastern portion of the survey area.**

Appendix D (cont.)
SPECIAL STATUS PLANT SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Species	Sensitivity Status	Habitat	Blooming Period	Potential to Occur	Status On site
Xylorhiza cognata Mecca-aster	Federal – None State – None BLM – Sensitive CRPR – 1B.2	A California-endemic perennial herb found in arid canyons, washes, and creosote bush scrub; < 1,200 ft.	January to June	Moderate. Suitable habitat occurs on site.	Not observed.
Xylorhiza orcuttii Orcutt's woody-aster	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Perennial herb that occurs in Sonoran desert scrub; < 1,000 ft.	March to April	Moderate. Suitable habitat occurs on site.	Not observed.

*For a listing of Status Codes please see Appendix F
BLM = Bureau of Land Management
CNPS = California Native Plant Society
ft = feet

Appendix E

SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR

Appendix E
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Invertebrates				
Euphydryas editha quino Quino checkerspot butterfly	Federal – FE State – None BLM – None	Found in association with but not restricted to vernal pools, sage scrub, chaparral, native and non-native grassland, and open oak and juniper woodland communities. The key component seems to be open-canopied habitats with larval host plants (*Plantago erecta* and possibly *Antirrhinum coulterianum*, *Collinsia concolor*, and *Castilleja exserta*) and adult nectar resources.	None	Species' habitat does not occur in the study area, and study area is outside of (i.e., east of) the USFWS recommended survey area for the species.
Vertebrates				
Fish				
Cyprinodon macularius Desert pupfish	Federal – FE State – SE BLM – None	Shallow waters with clear water and soft substrates.	None	Species' habitat does not occur in the study area.
Amphibians				
Lithobates yavapaiensis (=Yavapai, San Sebastian &San Felipe) Lowland leopard frog	Federal – None State – SSC BLM – Sensitive	A detailed understanding of the habitat requirements is lacking, but this species apparently inhabits slackwater aquatic habitats dominated by bulrushes, cattails, and riparian grasses near or under an overstory of Fremont's cottonwoods and willows (CDFG 1994).	None	Species' habitat does not occur in the study area.

Appendix E (cont.)

SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Scaphiopus couchii Couch's spadefoot	Federal – None State – SSC BLM – Sensitive	Requires temporary desert rainpools with water temperatures >15°C in which to breed that last at least seven days in order to metamorphose successfully. Subterranean refuge sites (with a loose-enough substrate to permit burial) must occur in the vicinity of rainpool depressions where reproduction takes place (CDFG 1994).	None	Species' habitat does not occur in the study area.
Reptiles				
Charina trivirgata **Rosy boa**	**Federal – None** **State – None** **BLM – Sensitive**	**Desert, arid scrub, brushland, rocky chaparral-covered foothills - particularly where moisture is available.**	**Present**	**Observed in rocky habitat in the southwest portion of the study area during surveys for the barefoot banded gecko.**

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Reptiles (cont.)				
Coleonyx switaki Barefoot banded gecko	Federal – None State – ST BLM – None	Rocky, boulder-strewn desert foothills, where it spends most of its life deep in rock crevices and subterranean chambers.	High	Species not detected or recorded within the area surveyed in 2010 despite exhaustive searches which totaled 50 survey hours. A portion of the I-8 Island was mapped as potential habitat for this species. Barefoot banded geckos have been previously documented within the I-8 Island during surveys for other projects; however, this area was excluded from the surveys for the proposed project given no project-related impacts would occur within the I-8 Island. CDFG survey protocol for the barefoot banded gecko states that, "*if no lizards are detected within four surveys according to this protocol, it will be assumed the species is not present in the surveyed area.*" Therefore barefoot banded gecko is assumed to be absent within the survey area. The portions of the proposed (redesigned) project that were not surveyed in 2010 will be resurveyed in 2011.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Reptiles (cont.)				
Gopherus agassizii Desert tortoise	Federal – FT State – ST BLM – None	Flats and bajadas with soils ranging from sand to sandy gravel with scattered shrubs. Requires sufficient suitable plants for forage and cover and suitable substrates for burrows and nest sites.	None	Outside range of the species. Anza-Borrego Desert State Park has reported past presence well north of the study area. Most tortoises west of the Salton Sea are probable releases (State Parks 2007).
Phrynosoma mcallii **Flat-tailed horned lizard**	**Federal – None** **State – SSC** **BLM – Sensitive**	**Occurs in desert washes and desert flats with cobbly, gravelly, or sandy soils; require native ant populations, particularly harvester ants (*Pogonomyrmex* sp.).**	**Present**	**A total of 17 FTHL were found within the study area during the FTHL survey as well as during other surveys conducted by HELIX. All of the FTHL were found east of Shell Canyon Road in the northeastern portion of the study area.**
Uma notata Colorado Desert fringe-toed lizard	Federal – None State – SSC BLM – Sensitive	Sparsely-vegetated arid areas with fine wind-blown sand including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into extreme northeastern Baja California, Mexico (California Herps.com 2011).	Low	Fine, wind-blown sands limited in the study area.

Appendix E (cont.)

SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds				
Accipiter cooperii Cooper's hawk	Federal – None State – WL BLM – None	Fall migrant and winter resident in the desert regions of southern California.	Present	Six observations were made during the migration count surveys: 2 observations in fall 2009, 1 observation in spring 2010, and 3 observations in fall 2010. One additional observation was made during an APC survey in April 2010.
Accipiter striatus Sharp-shinned hawk	Federal – None State – WL BLM – None	This species is a fall migrant and winter resident in the desert regions of southern California. Usually observed in areas with tall trees or other vegetative cover but can be observed in a variety of habitats.	Present	Four observations of sharp-shinned hawk were made in the study area, including 1 observation during the fall 2009 migration survey and 3 observations during the fall 2010 migration study. Species not observed during the spring 2010 migration survey.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Aquila chrysaetos Golden eagle	Federal – Bald and Golden Eagle Protection Act covered, SC, BCC State – FP, WL BLM –Sensitive	This species will nest in desert regions if cliff ledges or trees are present on very steep slopes. Foraging occurs over open scrub and grassland habitats.	Present	Golden eagles were observed on 5 survey dates during fall 2009 migration counts, no survey dates during the spring 2010 migration counts, and 10 survey dates during the fall 2010 migration counts. Observations were of either a single golden eagle or a group of 2 or 3 eagles, likely as a family group of 2 adults and one juvenile. One juvenile and 2 adult golden eagles were also observed during an APC survey. WRI's spring 2010 helicopter surveys within the 5 known golden eagle territories indicated that there are 20 nest sites within 10 miles of the study area. Two of the nest sites were considered active, having shown signs of nesting activity early in the 2010 breeding season, but none were occupied (i.e., no adults, eggs, or young were observed at the nest sites during helicopter surveys).
Asio otus Long-eared owl	Federal – None State – SSC BLM – None	Oak woodlands and riparian forests in proximity to open foraging habitat.	Present	One individual observed in the west central portion of the study area.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Athene cunicularia **Burrowing owl**	**Federal – SC, BCC** **State – SSC** **BLM – Sensitive**	**Grassland and open scrub habitats and agricultural lands. Uses burrows of squirrels (*Ammospermophilus and Spermophilus* spp.) and debris piles for nest sites.**	**Present**	**Three burrowing owls and one active burrow were documented during the January 2010 winter resident burrowing owl survey. No burrowing owls were observed during the Phase II burrow search in March/April 2010. Two active burrowing owl pairs were documented during the Phase III focused burrowing owl survey in June/July 2010. The active owl burrow observed in January 2010 (south of SR 98) was re-evaulated during the Phase III owl surveys and was determined to be not active during the 2010 owl breeding season. The burrows surveyed during the Phase III owl surveys are shown in Attachment B. It should be noted that burrowing owls were repeatedly sighted near the westernmost active burrow during the summer survey conducted at the end of July and early August. It is assumed that these repeat sightings near the westernmost burrow were the owls associated with the active burrow. In addition, 22 burrowing owl/ burrowing owl burrow locations were documented during the fall 2010 rare plant surveys.**

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Branta bernicla Brant	Federal – None State – SSC BLM – None	Does not breed in California. Occurs in the state primarily as a spring and fall migrant and winter visitor; passes mainly far offshore in fall and close inshore in spring when staging birds are numerous in isolated coastal estuaries. During the non-breeding season, brant require well-protected, shallow marine waters with intertidal eel-grass beds, primarily within bays and estuaries. Their extensive use of natural habitats contrasts with that of most other geese of the Northern Hemisphere, which now primarily use agricultural land throughout winter (Shuford and Gardali 2008a).	Present	A dead individual was found underneath the existing 500 kV transmission lines, in the northern portion of the study area. It is assumed the individual was migrating through the area.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Buteo regalis Ferruginous hawk	Federal – BCC State – WL BLM – Sensitive	Does not breed in southern California. Occurs in southern California as an uncommon winter resident and is associated with open grasslands. The species rarely occurs in desert valleys (Unitt 2004).	Present	Species observed on 3 dates in October 2009 during the fall 2009 migration survey. Species also observed during an APC survey in December 2009. Species not observed during the spring 2010 or fall 2010 migration surveys.
Buteo swainsoni Swainson's hawk	Federal – BCC State – ST BLM – None	Species migrates through Imperial County during its southward migration in the fall and during its northward migration in spring. Large groups known to roost in the town of Borrego Springs (approximately 40 miles to the northwest) during spring and fall migration, but the species is not known to breed in Imperial County (Unitt 2004).	Present	A total of 20 individuals were observed during migration count surveys: 1 in fall 2009, 2 in spring 2010, and 17 in fall 2010. Three additional observations were made during APC surveys in spring 2010.
Chaetura vauxi Vaux's swift	Federal – SC State – SSC BLM – None	Occurs rarely and irregularly in winter in southern California (Garrett and Dunn 1981 as cited in Shuford and Gardali 2008b). May roost in chimneys or other man-made structures and prefers to breed in old growth forests in western North America to central California (Shuford and Gardali 2008b).	Present	Species observed migrating through the study area during the spring and fall migration periods.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Charadrius montanus Mountain plover	Federal – PT, BCC State – SSC BLM – Sensitive	Does not breed, but winters, in California. Found on extremely dry shrublands, shortgrass prairie, barren agricultural fields, and other sparsely vegetated areas. Grazed alfalfa fields and burned Bermudagrass fields were heavily utilized by mountain plover (USFWS 2010b). The importance of the Imperial Valley to mountain plover, where the authors suggested half of the continental population of mountain plovers may winter, is linked to losses of wintering habitat in coastal and Central Valley, California (Wunder and Knopf 2003, pp. 77-78 as cited in USFWS 2010b).	Low.	Preferred habitats very limited to absent in the study area.
Circus cyaneus **Northern harrier**	**Federal – SC** **State – SSC** **BLM – None**	**Sloughs, wet meadows, marshlands, swamps, prairies, plains, grasslands, and shrublands. They nest on the ground, usually near water, or in tall grass, open fields, clearings, or on the water (Snyder 1993).**	**Present**	**A total of 12 individuals were observed during migration count surveys: 8 in fall 2009, 2 in spring 2010, and 2 in fall 2010. One additional observation was made during APC surveys in fall 2009.**

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Cypseloides niger Black swift	Federal – SC, BCC State – SSC BLM – None	Nests around waterfalls and sea cliffs. Specific wintering grounds of the California populations are not known (Lowther and Collins 2002 as cited in Shuford and Gardali 2008c). The entire California population appears to be composed of perhaps 200 pairs (Shuford and Gardali 2008c).	Low	Potential to migrate through the study area. No suitable breeding habitat exists within the study area.
Dendroica petechia brewsteri **Yellow warbler**	**Federal – SC, BCC** **State – SSC** **BLM – None**	**Occurs principally as a migrant and summer resident in California. Breeds April through July and generally occupies riparian vegetation in close proximity to water along streams and in wet meadows (Lowther et al. 1999 as cited in Shuford and Gardali 2008d).**	**Present**	**A total of 3 individuals were observed flying through the western portion of the study area during APC surveys in May 2010.**
Empidonax traillii extimus Southwestern willow flycatcher	Federal – FE State – SE BLM – None	Breeds within thickets of willows or other riparian understory usually along streams, ponds, lakes, or canyons. Migrants may be found among other shrubs in wetter areas.	Low	Potential to migrate through the study area. No suitable breeding habitat exists within the study area.
Falco columbarius **Merlin**	**Federal – SC** **State – WL** **BLM – None**	**Usually observed in grasslands but can occur in any habitat except dense woodlands.**	**Present**	**A total of 3 individuals were observed during migration count surveys: 1 in fall 2009 and 2 in fall 2010. Species not observed during the spring 2010 migration surveyor during APC surveys.**

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Falco mexicanus **Prairie falcon**	**Federal – SC, BCC** **State – WL** **BLM – None**	**Nesting occurs on cliff or bluff ledges or occasionally in old hawk or raven nests; foraging occurs in grassland or desert habitats.**	**Present**	**A total of 44 observations were made during migration count surveys: 15 in fall 2009, 20 in spring 2010, and 9 in fall 2010. Nine additional observations were made during APC surveys.**
Falco peregrinus anatum **American peregrine falcon**	**Federal – Delisted, BCC** **State – Delisted, FP** **BLM – None**	**Generally, areas with cliffs near water where prey (shorebirds and ducks) is concentrated. Preferred hunting areas are agricultural fields, meadows, marshes, and lakes. Nesting usually occurs on cliff ledges or in a scrape in debris and occasionally in the old nests of other birds.**	**Present**	**Two individuals were observed perched on the existing 500 kV transmission tower in the central portion of the study area (near Sugarloaf Mountain) in fall 2009. Suitable nesting habitat not present within study area.**
Lanius ludovicianus **Loggerhead shrike**	**Federal – SC, BCC** **State – SSC** **BLM – None**	**Resident species found in grassland, open sage scrub, chaparral, and desert scrub.**	**Present**	**Species was observed regularly throughout the study area during migration counts, the APC study, and other surveys.**
Laterallus jamaicensis coturniculus California black rail	Federal – SC, BCC State – ST, FP BLM – None	In California, a yearlong resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay and a few other locations, the Salton Sea, and lower Colorado River area (CDFG 1999).	None	Species' habitats not present in the study area.

Appendix E (cont.)

SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Melanerpes uropygialis Gila woodpecker	Federal – SC, BCC State – SE BLM – None	Permanent resident where found. Nevada and California populations generally constrained to the last riparian remnants of the Colorado River, though small numbers-perhaps up to 100 pair (G. McCaskie, pers. comm. as cited in McCreedy 2008)-may be still found in the Imperial Valley (Alcorn 1988, Hunter 1986 as cited in McCreedy 2008). Researchers recently discovered a small population in *Cercidium–Olneya* woodland near the Palo Verde Mountains, raising the possibility that more Gila Woodpeckers may be found in large, old-growth, xeric, riparian woodlands in Imperial County (McCreedy *in prep.* As cited in McCreedy 2008).	None	Species' habitats not present in the study area.
Pandion haliaetus **Osprey**	**Federal – SC** **State – WL** **BLM – None**	**Coasts and inland lakes.**	**Present**	**A total of 7 observations were made during migration count surveys: 1 in fall 2009, 5 in spring 2010, and 1 in fall 2010. Species not observed during APC surveys.**

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Rallus longirostris yumanensis Yuma clapper rail	Federal – FE State – ST, FP BLM – None	Lives in freshwater marshes dominated by cattail (*Typha* sp.) and bulrush (*Scirpus* ssp.) with a mix of riparian tree and shrub species (*Salix exigua*, *S. gooddingii*, *Tamarix* sp., *Tessaria serica*, and *Baccharis* sp.) along the shoreline of the marsh (Gould 1975, Smith 1975, Anderson and Ohmart 1985, Todd 1986, and Eddleman 1989 as cited in USFWS 2009).	None	Species' habitats not present in the study area.
Spizella breweri **Brewer's sparrow**	**Federal – BCC** **State – None** **BLM – None**	**In California, winters in the central and southern interior part of the state; favors low, dry vegetation (Audubon WatchList 2011).**	**Present**	**Observed throughout the year during APC study and also observed during migration counts. Species abundant within study area in the spring.**
Toxostoma lecontei **Le Conte's thrasher**	**Federal – SC, BCC** **State – SSC** **BLM –Sensitive**	**Year-round resident in Mojave and Sonoran desert shrublands, mesquite bosque, and small-stature Joshua tree woodlands (Weigand and Fitton 2008).**	**Present**	**A total of 22 LeConte's thrashers were observed in the northwest and west-central portions of the study area, usually as a solitary individual or occasionally as a group of 2 or 3 individuals, during the APC study. Observed regularly throughout the study area during other surveys, including several nesting locations.**
Vireo bellii pusillus Least Bell's vireo	Federal – FE, BCC State – SE BLM – None	Riparian habitat of low, dense, shrubby vegetation in valleys, foothills, and deserts.	Low	Potential to migrate through the study area. No suitable breeding habitat exists within the study area.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Birds (cont.)				
Vireo vicinior Gray vireo	Federal – SC, BCC State – SSC BLM – Sensitive	Occurs in chaparral, pinyon-juniper woodland, and Sonoran desert scrub. The total population size in California is probably in the low hundreds, with the majority occurring in San Diego County. In California, the primary breeding range includes the mountains of southern California. Gray Vireos are migratory, overwintering primarily in the Sonoran Desert of Mexico or in the extreme southwestern U.S. The San Diego County Bird Atlas resulted in the detection of Gray Vireos overwintering in the Sonoran desert of Anza-Borrego Desert State Park in association with a large grove of elephant trees (*Bursera microphylla*) in December 1999 (Unitt 2000, 2004 as cited in Winter and Hargrove 2004). This is the first known record of gray vireos overwintering in California. Follow-up surveys have revealed only a single individual at most per survey of the area through 2003 (Hargrove and Rotenberry 2003 as cited in Winter and Hargrove 2004). Elephant tree habitat also occurs in Imperial County, but it is unknown whether any focused winter surveys have been conducted there (Winter and Hargrove 2004).	Low	Potential to migrate through the study area. Elephant trees are not present in the study area.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Mammals				
Antrozous pallidus Pallid bat	Federal – None State – SSC BLM – Sensitive	Wide variety of habitats in all but highest elevations. Most common in open, dry habitats with rocky areas for roosting.	High	Not detected during bat surveys.
Corynorhinus townsendii Townsend's western big-eared bat	Federal – None State – SSC BLM – Sensitive	All but alpine and subalpine habitats. Roosts in caves or abandoned mines, occasionally in buildings.	Moderate	Not detected during bat surveys.
Eumops perotis californicus **Western mastiff-bat**	**Federal – None** **State – SSC** **BLM – Sensitive**	**Open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas.**	**Present**	**Detected in the western portion of the study area.**
Macrotus californicus California leaf-nosed bat	Federal – None State – SSC BLM – Sensitive	Desert scrub areas; roosts by day in caves, abandoned mines, and tunnels. Occurs in small numbers — rarely seen. Doesn't hibernate so is restricted to warmer climates (Bats of San Diego County 2006).	Moderate	Not detected during bat surveys.
Myotis ciliolabrum Small-footed myotis	Federal – None State – None BLM – Sensitive	Wide variety of habitats, primarily arid wooded and brushy uplands near water (CDFG 1990).	High	Not detected during bat surveys.
Myotis evotis Long-eared myotis	Federal – None State – None BLM – Sensitive	Lives in coniferous forests in mountain areas, roosts in small colonies in caves, buildings and under tree bark (Bats of San Diego County 2006).	Low	Not detected during bat surveys.
Myotis thysanodes Fringed myotis	Federal – None State – None BLM – Sensitive	Lives in oak and juniper forests, desert scrub. Roosts in caves, abandoned mines, or buildings (Bats of San Diego County 2006).	Moderate	Not detected during bat surveys.

Appendix E (cont.)
SPECIAL STATUS ANIMAL SPECIES PRESENT OR WITH POTENTIAL TO OCCUR CONSIDERED IN THE OEWP STUDY AREA

Species	Status	Habitat	Potential To Occur	Observations in the OEWP Study Area
Vertebrates (cont.)				
Mammals				
Myotis velifer Cave myotis	Federal – None State – SSC BLM – Sensitive	This species is found primarily at lower elevations (the Sonoran and Transition life zones) of the arid southwest, in areas dominated by creosote bush, palo verde, brittlebush, and cactus. In California, it occurs only along the Colorado River (Western Bat Working Group 2005).	None	Study area is not along the Colorado River.
Myotis yumanensis Yuma myotis	Federal – None State – None BLM – Sensitive	Optimal habitat is open forests and woodlands with open water.	Moderate	Not detected during bat surveys.
***Ovis canadensis nelsoni* (Distinct Population Segment)** **Peninsular bighorn sheep (PBS)**	**Federal – FE** **State – ST, FP** **BLM – None**	**Semi-open, precipitous terrain with rocky slopes, ridges, and cliffs or canyons; from alpine meadow to hot desert.**	**Present**	**PBS were observed in the study area in 2010. All of these observations were in the I-8 Island in the southwest portion of Site 1. Suitable habitat (i.e., steep, escape-route terrain) also occurs in the southwest portion of Site 1.**
Taxidea taxus ***American badger***	**Federal – None** **State – SSC** **BLM – None**	**American badgers occur primarily in grasslands, parklands, farms, and other treeless areas with friable soil and a supply of rodent prey. They are also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows (Sullivan 1996).**	**Present**	**Tracks and 3 badger dens were observed in the northern portion of the study area.**

*For a listing of Status Codes please see Appendix F

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Appendix F

EXPLANATION OF STATUS CODES FOR PLANT AND ANIMAL SPECIES

Appendix F
EXPLANATION OF STATUS CODES FOR PLANT AND ANIMAL SPECIES

U.S. Fish and Wildlife Service (USFWS; 2011)

FE	Federally listed endangered
FT	Federally listed threatened
PT	Federally proposed threatened
Delisted	No longer federally listed due to recovery
SC	Species of Concern is an informal term that refers to those species which might be in need of concentrated conservation actions.
BGEPA	Bald and Golden Eagle Protection Act (discussed in more detail, below)
BCC	Birds of Conservation Concern (discussed in more detail, below; USFWS 2008)

U.S. Bureau of Land Management (CDFG 2009)

BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Federal Endangered Species Act.

USFWS Bald and Golden Eagle Protection Act (BGEPA)

In 1782, Continental Congress adopted the bald eagle as a national symbol. During the next one and a half centuries, the bald eagle was heavily hunted by sportsmen, taxidermists, fisherman, and farmers. To prevent the species from becoming extinct, Congress passed the Bald Eagle Protection Act in 1940. The Act was extremely comprehensive, prohibiting the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export or import of the bald eagle "at any time or in any manner."

In 1962, Congress amended the Eagle Act to cover golden eagles, a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. The golden eagle, however, is accorded somewhat lighter protection under the Act than the bald eagle. Another 1962 amendment authorizes the Secretary of the Interior to grant permits to Native Americans for traditional religious use of eagles and eagle parts and feathers.

USFWS Birds of Conservation Concern (BCC)

The primary legal authority for Birds of Conservation Concern (2002) is the Fish and Wildlife Conservation Act of 1980 (FWCA), as amended. Other authorities include the Endangered Species Act, Fish and Wildlife Act (1956) and 16 USC §701. A FWCA 1988 amendment (Public Law 100-653, Title VIII) requires the Secretary of the Interior through the USFWS to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The BCC report is the most recent effort by the USFWS to carry out this proactive conservation mandate.

USFWS Birds of Conservation Concern (BCC) (cont.)

The BCC report aims to identify accurately the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS' highest conservation priorities and draw attention to species in need of conservation action. The USFWS hopes that by focusing attention on these highest priority species, the report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. The report is available online at http://www.fws.gov/migratorybirds/reports/BCC2002.pdf.

California Department of Fish and Game (CDFG)

SE State listed endangered
ST State listed threatened
SSC State species of special concern
Fully Protected Fully Protected species refer to all vertebrate and invertebrate taxa of concern to the Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFG.
WL Taxa to watch (the birds on this watch list are 1) not on the current species of special concern list but were on previous lists and they have not been state listed under California Endangered Species Act; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of FP species.

California Environmental Quality Act (CEQA)

For plants with no current federal or state legal standing, "CEQA" refers to the fact that under the Act, impacts to species may be found significant under certain circumstances (e.g., the species are regionally sensitive and/or are protected by a local policy, ordinance, or habitat conservation plan; or the impact involves interference with certain movements or migrations, with wildlife corridors or with nursery sites).

EXPLANATION OF STATUS CODES FOR PLANT AND ANIMAL SPECIES

California Rare Plant Rank (CRPR) Codes

Lists

1A = Presumed extinct.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2 = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Distribution, endangerment, ecology, and/or taxonomic information needed. Some eligible for state listing.

4 = A watch list for species of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

List/Threat Code Extensions

.1 = Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Fairly endangered in California (20 to 80 percent occurrences threatened)

.3 = Not very endangered in California (less than 20 percent of occurrences threatened, or no current threats known)

A CA Endemic entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no threat code extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.

Appendix G

REGULATORY CONTEXT

Appendix G
REGULATORY CONTEXT

FEDERAL REGULATIONS

National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs "a systematic, interdisciplinary approach" to planning and decision-making, and requires environmental statements for "major Federal actions significantly affecting the quality of the human environment." Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environmental and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the OWEF.

Clean Water Act

The CWA (33 U.S.C. 1251 et seq) is intended to restore and maintain the quality and biological integrity of the nation's waters. It prohibits the discharge of pollutants into WUS without a National Pollutant Discharge Elimination System (NPDES) permit from the EPA. By issuing NPDES permits, the EPA can regulate the discharge of pollutants to protect water quality.

Section 404 of the CWA provides that whenever any person discharges dredged or fill material into waters of the U.S. (e.g., streams, wetlands, lakes, bays) a permit is required from the ACOE. The ACOE has issued 50 separate Nationwide Permits (NWPs) for different types of projects with impacts to wetlands (as of March 19, 2007). Depending on the level of impact, projects qualifying for an NWP may be required to provide the ACOE with Pre-Construction Notification of the impacts and meet other restrictions. Projects with greater wetland impacts than those allowed under one of the NWPs require an Individual Permit. The process of obtaining an individual permit includes public notice and response to all comments received; the permit decision document includes a discussion of the environmental impacts of the project, the permit addresses public and private needs, alternatives to achieve project purposes if needed, and beneficial and/or detrimental effects of the project on public and private uses. In *SWANCC vs. ACOE*, the Supreme Court ruled that the jurisdiction of the ACOE does not extend to isolated, intrastate, non-navigable waters and wetlands, such as vernal pools, ephemeral streams, and wetlands not associated with a stream channel. The ACOE also authorizes activities that involve structures or work in or affecting navigable WUS under Section 10 of the Rivers and Harbors Act of 1899.

Section 401 of the CWA requires that an applicant for a federal license or permit to discharge into navigable waters must provide the federal agency with a water quality certification, declaring that the discharge would comply with water quality standards requirements of the CWA. ACOE

issuance of a Section 404 permit triggers the requirement that a Section 401 certification also be obtained. In California, the Regional Water Quality Control Boards (RWQCBs) issue this certification.

Executive Order 13112 – Invasive Species

Executive Order 13112 was signed in February 1999 and established the National Invasive Species Council. This Order requires agencies to prevent the introduction of invasive species; to provide for their control; and to minimize the economic, ecological, and human health impacts that invasive species cause to the extent practicable and permitted by law.

Federal Noxious Weed Act of 1974, as amended

This Act established a federal program to control the spread of noxious weeds. The Secretary of Agriculture is authorized to designate plants as noxious weeds. The movement of all such weeds in interstate or foreign commerce is prohibited except under permit.

Lacey Act, as amended (16 USC 3371-3378)

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

Federal Endangered Species Act

The ESA designates threatened and endangered animals and plants and provides measures for their protection and recovery. "Take" of listed animal species and of listed plant species is prohibited without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not it is currently present, is also prohibited. ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with USFWS. For example, the ACOE must issue a permit for projects impacting non-wetland WUS or wetlands under ACOE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., ACOE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 30 days to respond to the BA by issuing its Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a "no

jeopardy" opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest "reasonable and prudent measures" that would result in no jeopardy.

Under Section 10 of the ESA private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an Incidental Take Permit, the applicant must develop a habitat conservation plan (HCP) which specifies effects to listed species, provides minimization and mitigation measures and funding, and discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not "appreciably reduce the likelihood of the survival and recovery of the species" it will issue an Incidental Take Permit. Issuance of an Incidental Take Permit requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on private property are protected under ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an Incidental Take Permit.

BLM Sensitive Species

BLM Sensitive Species are species designated by the State Director that are not already federal listed proposed, or candidate species, or state listed because of potential endangerment. BLM's policy is to "ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered." Various offices of the BLM maintain a list of special status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

Flat-tailed Horned Lizard Rangewide Management Strategy

The Flat-tailed Horned Lizard Rangewide Management Strategy was prepared in order to provide management and conservation guidelines for FTHL habitat throughout the species' range. Five Management Areas (MAs), four of which are in California, were designated in order to promote the maintenance of self-sustaining stable or increasing populations. For habitat outside of the MAs, a land mitigation and compensation program is in effect to balance future activities in FTHL habitat. The proposed OWEF site is adjacent to the Yuha Desert Management Area located south of I-8.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations that protect migratory birds (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping, unless expressly authorized or permitted.

The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits take, which is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or

otherwise harm eagles, their nests, or their eggs." Under the BGEPA, "disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. On September 11, 2009, (*Federal Register,* 50 CFR parts 13 and 22), the USFWS set in place rules establishing two new permit types: (1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and (2) purposeful take of eagle nests that pose a threat to human or eagle safety. Specifically, the BGEPA authorizes intentional take of eagle nests: where necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human-engineered structure; the activity, or mitigation for the activity, will provide a net benefit to eagles; and allows inactive nests to be taken only in the case of safety emergencies.

As described in the USFWS Draft Eagle Conservation Plan (ECP) Guidance dated January 2011 (USFWS 2011b), the USFWS recommends that project proponents prepare an ECP to avoid, minimize, and mitigate project-related impacts to eagles to ensure no-net-loss to the golden eagle population. Pursuant to BLM Instructional Memorandum (IM) 2010-156, the BLM will request "concurrence" from the USFWS that the ECP meets specific requirements. Ocotillo Express LLC has prepared a draft ECP (Ocotillo Express LLC 2011).

Executive Order 11990 Protection of Wetlands

This order establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. 661 666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

STATE LAW AND REGULATIONS

California Endangered Species Act

The California ESA provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike ESA, state listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFG under California ESA Sections 2091 and 2081. Section 2091, like ESA Section 7, provides for consultation between a state lead agency under the CEQA and CDFG,

with issuance of take authorization if the project does not jeopardize the listed species. Section 2081 allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFG to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

California Environmental Quality Act

CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by state and local public agencies. In addition to federal or state listed species, "sensitive" plants and animals receive consideration under CEQA. Sensitive species include, but are not limited to, wildlife Species of Special Concern listed by CDFG, and plant species on the California Native Plant Society's List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for state listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for state listing).

California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

California Desert Conservation Area Plan

The California Desert Conservation Area (CDCA) Plan covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the CDCA Plan, essentially zoning the CDCA into four major use categories, as a city or county is zoned for land use classes. The CDCA Plan categories include approximately four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; approximately four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; approximately 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any

damage caused by permitted uses; and approximately 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 2007). The Plan's goals and actions for each resource are established in its 12 elements including the Vegetation Element and the Energy Production and Utility Corridors Element, among several others (BLM, 2007). The proposed OWEF site is located within Class C and Class L lands (BLM, 1980, fold-out map). While there have been amendments to the 1980 Plan, such as the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), none of the amendments affect the proposed OWEF site.

According to the Plan's Multiple Use Class Guidelines, wind/solar power plants are not allowed within Class C lands but may be allowed within Class L lands after NEPA requirements are met (BLM, 1980). The Plan also states, however (in the Energy Production and Utility Corridors Element section), that "Plan amendment procedures will adequately provide for the coordination needed for assuring rapid implementation of these important fuel-replacement alternative energy programs in an environmentally sound manner" (BLM, 1980).

California Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 directed the CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. The California Endangered Species Act of 1984 expanded on the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the Fish and Game Code. To align with federal regulations, California ESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in California ESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFG and the project proponent.

Porter-Cologne Act

The intent of the Porter-Cologne Act is to protect water quality and the beneficial uses of water, and applies to both surface and groundwater. Under this law, the California State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne include isolated waters that are no longer regulated by ACOE. Developments which impact jurisdictional waters must demonstrate compliance with the goals of the Act by developing Storm Water Pollution Prevention Plans, Standard Urban Storm Water Mitigation Plans, and other measures in order to obtain a CWA Section 401 certification.

Lake and Streambed Alteration Program

Prior to commencement of any activity that would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, the applicant shall submit a complete Lake or Streambed Alteration Program notification package and fee to the CDFG. The Lake and Streambed Alteration Program is a California law that requires that any person, state or local government agency, or public utility notify the CDFG prior to beginning of the activities listed above. The CDFG has 30 days to review the proposed actions and propose measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFG and the project proponent becomes the Lake or Streambed Alteration Agreement. The conditions of agreement and a CWA Section 404 permit often overlap.

REGIONAL AND LOCAL PLANS, POLICIES, AND REGULATIONS

Imperial County General Plan

The Conservation and Open Space Element and Land Use Element of the General Plan (County of Imperial, 1993 and 2008) direct the County to evaluate the compatibility of proposed development projects with the preservation of biological resources and open space.

The Goals and Objectives of Conservation of Environmental' Resources and Preservation of Biological Resources within the Conservation and Open Space Element related to vegetation, sensitive plant species, and jurisdictional areas include the following:

Goal 1: Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions.

Objective 1.1 Recognize that the degradation of one natural resource will have a concomitant negative effect upon the total resource base, including water, vegetation, air, wildlife, soil, and minerals.

Objective 1.2 Encourage only those uses and activities that are compatible with the fragile desert, aquatic, and marshland environment.

Objective 1.3 Coordinate the acquisition, designation, and management of important natural resource areas in Imperial County with other appropriate governmental agencies as necessary.

Objective 1.4 Develop standards to protect significant natural resource areas for the purpose of enhancing both the planning and decision-making process.

Objective 1.5 Provide for the most beneficial use of land based upon recognition of natural constraints.

Objective 1.6 Ensure the conservation, development and utilization of the County's natural resources.

Objective 1.7 Provide the opportunity for enjoyment of a quality natural experience to present and future generations.

Objective 1.8 Encourage the acquisition of scientific knowledge by encouraging the preservation of important ecological, archaeological, and other scientific sites.

Goal 2: The County will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats, and plant and animal species.

Objective 2.1 Conserve wetlands, fresh water marshes, and riparian vegetation.

Objective 2.2 Protect significant fish, wildlife, plant species, and their habitats.

Objective 2.3 Protect unique, rare, and endangered plants and animals and their habitats.

Objective 2.4 Use the environmental impact report process to identify, conserve and enhance unique vegetation and wildlife resources.

Objective 2.5 Give wildlife conservation a high priority in County park acquisition and development programs.

Objective 2.6 Attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.

Objective 2.7 Discourage the use of wild native animals as pets.

The Goals and Objectives of Protection of Environmental Resources within the Land Use Element related to vegetation, sensitive plant species, and jurisdictional areas include the following include the following:

Goal 9: Identify and preserve significant natural, cultural, and community character resources and the County's air and water quality.

Objective 9.1 Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

An analysis of compatibility will be provided in Section 4.17 and 4.23, as appropriate.

Imperial County Land Use Ordinance

The Imperial County Land Use Ordinance provides grading regulations for proposed development projects throughout the unincorporated areas of the county (County of Imperial, 2009).

Appendix E-1

Visual Resources

Summary of Key Observation Point Analysis

Appendix E-3

Visual Resources

Summary of Key Observation Points Analysis

APPENDIX E–1
OCOTILLO WIND ENERGY FACILITY EIS/EIR: VISUAL RESOURCES – SUMMARY OF KEY OBSERVATION POINT ANALYSES
METHODOLOGIES:

BLM BLM LANDS: VISUAL RESOURCE MANAGEMENT (VRM)

NON – BLM LANDS: VISUAL SENSITIVITY-VISUAL CHANGE (VS-VC)

ALTERNATIVE 1 - PROPOSED PROJECT

VIEWPOINT		BLM - EXISTING VISUAL SETTING					BLM - VISUAL CONTRAST ANALYSIS		IMPACT SIGNIFICANCE	
Key Observation Point (KOP)	Description	Scenic Quality Classification	Viewer Sensitivity	VRM Class			Level of Change (See Appendix VR-3 Contrast Rating Worksheets)	VRM Consistency	Before Mitigation / After Mitigation	Mitigation
				Status	Rating	Management Objective				
KOP 1 **Eastbound I-8** **Figures 4.18-2A / 2B**	View to the north-northeast, from eastbound Interstate 8, at the I-8 split at the base of Mountain Springs Grade.	**Class C** This view encompasses a portion of the Yuha Desert in close proximity to major infrastructure corridors including Interstate 8 and the existing SWPL transmission line (not apparent in the view presented as Figure 4.18-2A). The flat desert landscape supports an irregular to consistent distribution of short grasses and shrubs of subdued color. Although there are distant mountain ranges and areas of localized erosion that create land variation of visual interest, the overall scenic quality of the desert basin landscape is somewhat compromised by the prominence of the freeway, the presence of the steel-lattice structures with their industrial character (from various viewpoints), and the existing development associated with the community of Ocotillo.	**High** Note: These lands are within the California Desert Conservation Area and are within the viewsheds of Interstate 8, the community of Ocotillo, and Anza-Borrego Desert State Park)	**Interim**	**III**	To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be [no greater than] moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.	**Moderate to High** The Proposed Project would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Proposed Project turbines. Also, the turbines would cause partial view blockage of the background Coyote Mountains and Yuha Desert basin floor. The resulting structural form and line contrast would be strong and the color and texture contrast would be moderate.	**Not Consistent** The moderate-to-high level of change would not meet the VRM Class III objective of a moderate (or lower) degree of visual change. The new wind turbines with their prominent vertical structural forms and vertical (tower) to diagonal (blades) lines would not repeat the basic elements of the existing natural features in the landscape (simple, flat horizontal [basin floor] to horizontal and angular [Coyote Mountains] landform). Also, the proposed structures would be prominent to dominant features in the landscape, which would be accentuated by the skylining that would occur where structures protrude above the horizon.	**BEFORE:** **Significant (Class I)** **AFTER:** **Same**	**None Proposed**
KOP 2 **Westbound I-8** **Figures 4.18-3A / 3B**	View to the northwest, from westbound Interstate 8, west of the I-8 split at the base of Mountain Springs Grade.	**Class C** This view encompasses the far western portion of the Yuha Desert, west of Ocotillo and the existing SWPL transmission line, and extending to the San Diego/Imperial County line. This area includes a foreground to middleground flat desert landscape that supports a sparse distribution of short grasses and shrubs of subdued color. Although the rugged and visually interesting landforms of the adjacent Jacumba Mountains and Volcanic hills to the west and Coyote Mountains to the north provide backdrops of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert.	**High** Note: These lands are within the California Desert Conservation Area and are within the viewsheds of Interstate 8, the community of Ocotillo, and Anza-Borrego Desert State Park)	**Interim**	**III**	To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be [no greater than] moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.	**High** The Proposed Project would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Proposed Project turbines. Also, the turbines would cause partial view blockage of the background Vulcan Hills and Coyote Mountains and Yuha Desert basin floor. The resulting structural form and line contrast would be strong. The color contrast would be moderate to strong, and texture contrast would be moderate.	**Not Consistent** The high level of change would not meet the VRM Class III objective of a moderate (or lower) degree of visual change. The new wind turbines with their prominent vertical structural forms and vertical (tower) to diagonal (blades) lines would not repeat the basic elements of the existing natural features in the landscape (simple, flat horizontal [basin floor] to horizontal and angular [Vulcan Hills and Coyote Mountains] landforms). Also, the proposed structures would be prominent to dominant features in the landscape, which would be accentuated by the skylining that would occur where structures protrude above the horizon.	**BEFORE:** **Significant (Class I)** **AFTER:** **Same**	**None Proposed**

APPENDIX E–1
OCOTILLO WIND ENERGY FACILITY EIS/EIR: VISUAL RESOURCES – SUMMARY OF KEY OBSERVATION POINT ANALYSES
METHODOLOGIES:

BLM BLM LANDS: VISUAL RESOURCE MANAGEMENT (VRM)

NON – BLM LANDS: VISUAL SENSITIVITY-VISUAL CHANGE (VS-VC)

VIEWPOINT		EXISTING VISUAL SETTING								VISUAL CHANGE					IMPACT SIGNIFICANCE	
				Viewer Exposure												
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Visibility	Distance Zone	Number of Viewers	Duration of View	Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Before Mitigation / After Mitigation	Mitigation
KOP 3 **Ocotillo Community Park** **Figures 4.18-4A / 4B**	View to the north from Ocotillo Community Park, off of S2, and northwest of the Community of Ocotillo.	**Low to Moderate** Foreground to middleground relatively non-descript, flat, grass- and shrub-covered desert basin, crossed by faintly visible utility towers with industrial character (SWPL 500 kV line, soon to be paired up with the Sunrise Powerlink 500 kV line). Backdropped by the rugged Coyote Mountains.	**High** Visitors to this developed recreation facility anticipate open views of the surrounding desert landscape and relatively unobstructed views to the nearby Coyote Mountains. Any addition of developed industrial features to the landscape or blockage of views to higher quality landscape features (Coyote Mountains to the north, Jacumba Mountains to the south and surrounding desert basin floor) would be perceived as an adverse visual change in the landscape.	**High**	**Foreground**	**Low to Moderate**	**Extended**	**Moderate to High**	**Moderate to High**	The Proposed Project would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Proposed Project turbines. Also, the turbines would cause partial view blockage of the background Coyote Mountains and Yuha Desert basin floor.	**High**	**Co-Dominant to Dominant**	**Moderate to High**	**Moderate to High**	BEFORE: **Significant (Class I)** AFTER: **Same**	**None Proposed**

VIEWPOINT		BLM - EXISTING VISUAL SETTING					BLM - VISUAL CONTRAST ANALYSIS		IMPACT SIGNIFICANCE	
				VRM Class						
Key Observation Point (KOP)	Description	Scenic Quality Classification	Viewer Sensitivity	Status	Rating	Management Objective	Level of Change (See Appendix VR-3 Contrast Rating Worksheets)	VRM Consistency	Before Mitigation / After Mitigation	Mitigation
KOP 4 **Southbound County Road S2** **Figures 4.18-5A / 5B**	View to the south-southeast, from southbound S2, approximately 1.2 miles southeast of the San Diego/Imperial County line.	**Class C** This view encompasses the far western portion of the Yuha Desert, west of Ocotillo and the existing SWPL transmission line, and extending to the San Diego/Imperial County line. This area includes a foreground to middleground flat desert landscape that supports a sparse distribution of short grasses and shrubs of subdued color. Although the rugged and visually interesting landforms of the adjacent Jacumba Mountains and Wilderness to the south provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert.	**High** Note: These lands are within the California Desert Conservation Area and are within the viewsheds of Interstate 8, the community of Ocotillo, and Anza-Borrego Desert State Park)	**Interim**	**III**	To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be [no greater than] moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.	**High** The Proposed Project would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Proposed Project turbines. Also, the turbines would cause substantial view blockage of the background Jacumba Mountains and Yuha Desert basin floor. The resulting structural form and line contrast would be strong. The color contrast would be moderate to strong, and texture contrast would be moderate.	**Not Consistent** The high level of change would not meet the VRM Class III objective of a moderate (or lower) degree of visual change. The new wind turbines with their prominent vertical structural forms and vertical (tower) to diagonal (blades) lines would not repeat the basic elements of the existing natural features in the landscape (simple, flat horizontal [basin floor] to horizontal and angular [Jacumba Mountains] landform). Also, the proposed structures would be prominent to dominant features in the landscape, which would be accentuated by the skylining that would occur where structures protrude above the horizon.	BEFORE: **Significant (Class I)** AFTER: **Same**	**None Proposed**

APPENDIX E–1
OCOTILLO WIND ENERGY FACILITY EIS/EIR: VISUAL RESOURCES – SUMMARY OF KEY OBSERVATION POINT ANALYSES

METHODOLOGIES:

BLM BLM LANDS: VISUAL RESOURCE MANAGEMENT (VRM)

NON – BLM LANDS: VISUAL SENSITIVITY-VISUAL CHANGE (VS-VC)

VIEWPOINT		EXISTING VISUAL SETTING								VISUAL CHANGE					IMPACT SIGNIFICANCE	
				Viewer Exposure												
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Visibility	Distance Zone	Number of Viewers	Duration of View	Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Before Mitigation / After Mitigation	Mitigation
KOP 5 **Anza-Borrego Desert State Park** **Mortero Palms Access** **Figures 4.18-6A / 6B**	View to the east from the access road to the Mortero Palms and Dos Cabezas Primitive Camping Area. This viewpoint is approximately 1.0 mile west of the project boundary.	**Moderate** Panoramic vista views of a foreground to background natural appearing flat, grass- and shrub-covered desert basin, bordered by the rugged Coyote Mountains to the north and Jacumba Mountains to the south.	**High** Backcountry travelers accessing the Mortero Palms and Dos Cabezas Primitive Camping Area are there for the recreational and nature experience. Any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (desert basin or surrounding mountain ranges) would be seen as an adverse visual change.	**High**	**Foreground**	**Low**	**Moderate to Extended**	**Moderate to High**	**Moderate to High**	The Proposed Project would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Proposed Project turbines. Also, the turbines would cause substantial view blockage of the Yuha Desert basin floor and Coyote Mountains.	**High**	**Co-Dominant to Dominant**	**Moderate to High**	**Moderate to High**	**BEFORE:** **Significant (Class I)** **AFTER:** **Same**	**None Proposed**
KOP 6 **Anza-Borrego Desert State Park** **Red Hill** **Figures 4.18-7A / 7B**	View to the east-southeast from the crest of Red Hill in Anza-Borrego Desert State Park, approximately 2.1 miles northwest of the northwest corner of the project boundary.	**Moderate to High** Panoramic vista view and overlook of the Yuha Desert basin that also encompasses the surrounding rugged Jacumba Mountains, Volcanic Hills, and Coyote Mountains, with the Sierra Cucapa Range in Mexico in the distant background. At this middleground viewing distance, the existing SWPL transmission line structures are not visually apparent as they blend with the background landforms.	**High** Backcountry travelers hiking to the top of Red Hill are there for the recreational and nature experience and vista views of the surrounding desert landscape. Any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (desert basin or surrounding mountain ranges) would be seen as an adverse visual change.	**High**	**Middleground**	**Low**	**Extended**	**Moderate**	**Moderate to High**	The Proposed Project would result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Proposed Project turbines. Also, the turbines would cause substantial view blockage of the Yuha Desert basin floor and Jacumba Mountains.	**High**	**Co-Dominant**	**Moderate to High**	**Moderate to High**	**BEFORE:** **Significant (Class I)** **AFTER:** **Same**	**None Proposed**

APPENDIX E–1
OCOTILLO WIND ENERGY FACILITY EIS/EIR: VISUAL RESOURCES – SUMMARY OF KEY OBSERVATION POINT ANALYSES
METHODOLOGIES:

BLM BLM LANDS: VISUAL RESOURCE MANAGEMENT (VRM)

NON – BLM LANDS: VISUAL SENSITIVITY-VISUAL CHANGE (VS-VC)

ALTERNATIVE 2 – 137 TURBINES

VIEWPOINT		EXISTING VISUAL SETTING								VISUAL CHANGE					IMPACT SIGNIFICANCE	
				Viewer Exposure												
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Visibility	Distance Zone	Number of Viewers	Duration of View	Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Before Mitigation / After Mitigation	Mitigation
KOP 6 **Anza-Borrego Desert State Park** **Red Hill** **Figure 4.18-7C**	View to the east-southeast from the crest of Red Hill in Anza-Borrego Desert State Park, approximately 2.1 miles northwest of the northwest corner of the project boundary.	**Moderate to High** Panoramic vista view and overlook of the Yuha Desert basin that also encompasses the surrounding rugged Jacumba Mountains, Volcanic Hills, and Coyote Mountains, with the Sierra Cucapa Range in Mexico in the distant background. At this middleground viewing distance, the existing SWPL transmission line structures are not visually apparent as they blend with the background landforms.	**High** Backcountry travelers hiking to the top of Red Hill are there for the recreational and nature experience and vista views of the surrounding desert landscape. Any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (desert basin or surrounding mountain ranges) would be seen as an adverse visual change.	High	Middleground	Low	Extended	Moderate	Moderate to High	Although Alternative 2 would eliminate a few proposed turbines from the Site 1 and Site 2 development areas, Alternative 2 would still result in the introduction of visually prominent built structures into a landscape generally lacking similar built features of industrial or technological character. Although the SWPL line is visible in the project area and will be joined in parallel by the Sunrise Powerlink Transmission Line, the lines will not appear as prominent as the Alternative 2 turbines. Also, the turbines would cause substantial view blockage of the Yuha Desert basin floor and Jacumba Mountains.	High	Co-Dominant	Moderate to High	Moderate to High	BEFORE: Significant (Class I) AFTER: Same	None Proposed

APPENDIX E–1
OCOTILLO WIND ENERGY FACILITY EIS/EIR: VISUAL RESOURCES – SUMMARY OF KEY OBSERVATION POINT ANALYSES

METHODOLOGIES:

BLM BLM LANDS: VISUAL RESOURCE MANAGEMENT (VRM)

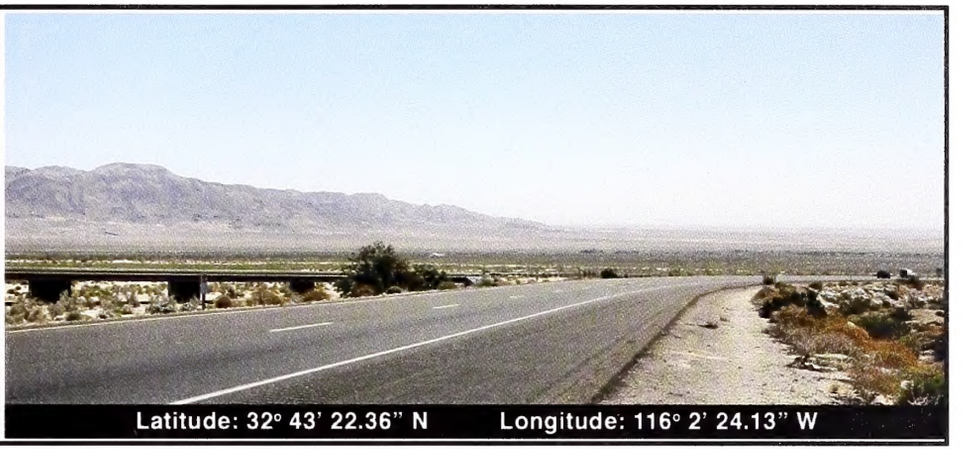
NON – BLM LANDS: VISUAL SENSITIVITY-VISUAL CHANGE (VS-VC)

ALTERNATIVE 3 – 105 TURBINES

VIEWPOINT		EXISTING VISUAL SETTING								VISUAL CHANGE					IMPACT SIGNIFICANCE	
				Viewer Exposure												
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Visibility	Distance Zone	Number of Viewers	Duration of View	Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Before Mitigation / After Mitigation	Mitigation
KOP 7 County Road S2 in the Community of Ocotillo Figures 4.18-8A / 8B	View to the northeast from S2 in the community of Ocotillo.	**Low to Moderate** Foreground to middleground relatively non-descript, flat, grass- and shrub-covered desert basin, crossed by faintly visible utility towers with industrial character (SWPL 500 kV line, soon to be paired up with the Sunrise Powerlink 500 kV line). Partially backdropped (to the north) by the southeastern extent of the rugged Coyote Mountains.	**High** Travelers on S2 and local residents anticipate open views of the desert landscape to the north and east and relatively unobstructed views to the nearby Coyote Mountains. Any addition of developed industrial features to the landscape or blockage of views to higher quality landscape features (Coyote Mountains to the north, surrounding desert basin floor, and sky) would be perceived as an adverse visual change in the landscape.	High	Foreground	Low to Moderate	Extended	Moderate to High	Moderate to High	Alternative 3 would result in the elimination of proposed turbines from the northeast portion of Site 1 of the Development Plan. Therefore, Alternative 3 would retain the existing setting and not cause an adverse visual change in this portion of Site 1.	None	None	None	None	BEFORE: No Impact	None Proposed
KOP 8 SR 98 (Yuha Cutoff) Southeast of Ocotillo Figures 4.18-9A / 9B	View to the southwest from SR 98 at Mesquite Road, southeast of the community of Ocotillo.	**Moderate** Foreground to middleground desert basin landscape dominated by the rugged Jacumba Mountains and Wilderness to the immediate south, and punctuated by the occasional rural residence south of SR 98. A wood-pole utility line is also present in close proximity to portions of SR 98.	**High** Travelers on SR 98 and local residents (Coyote Wells and Ocotillo) anticipate open views of the surrounding desert landscape and relatively unobstructed southerly views to the Jacumba Mountains and Wilderness. Any addition of developed industrial features to the landscape or blockage of views to higher quality landscape features (Jacumba Mountains, desert basin floor, and sky) would be perceived as an adverse visual change in the landscape.	High	Foreground	Low to Moderate	Extended	Moderate to High	Moderate to High	Alternative 3 would result in the elimination of proposed turbines from Site 2 of the Development Plan, which covers an area south of SR 98. Therefore, Alternative 3 would retain the existing setting and not cause an adverse visual change in this portion of Site 2.	None	None	None	None	BEFORE: No Impact	None Proposed

Visual Contrast Rating Data Sheet
Ocotillo Wind Energy Facility EIS/EIR

KEY OBSERVATION POINT DESCRIPTION

Key Observation Point 1	 Latitude: 32° 43' 22.36" N Longitude: 116° 2' 24.13" W
Location Eastbound Interstate 8, at the I-8 split at the base of Mountain Springs Grade, viewing to the north-northeast.	
VRM Class III	
Analyst Michael Clayton	
Date May 22, 2010	

CHARACTERISTIC LANDSCAPE DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Flat, horizontal	Patchy to continuous at distance	Linear and geometric
Line	Horizontal (basin floor) to diagonal and irregular (Coyote Mountains)	Irregular to distinct horizontal as defined by the basin floor	Vertical, horizontal, and curvilinear for I-8 and road supports
Color	Light to dark tans	Grasses: tans to pale yellow; Shrubs: muted greens, tans, and reddish hues	Gray
Texture	Smooth to granular	Matte	Smooth to granular

PROPOSED ACTIVITY DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Same	Same	Linear and geometric
Line	Same	Irregular to distinct horizontal as defined by the basin floor and access roads	Prominent vertical for supports and horizontal, vertical and diagonal for blades
Color	Same	Same	White to light gray
Texture	Same	Same	Smooth

DEGREE OF CONTRAST

	LANDFORM / WATER				VEGETATION				STRUCTURES			
	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG
Form	4				4							4
Line	4					4						4
Color	4				4						4	
Texture	4				4						4	

LEVEL OF CHANGE & VRM CLASS CONSISTENCY

Term: ☐ Short ☒ Long **Level of Change:** ☐ Very Low ☐ Low ☒ Moderate ☒ High

Does the Project Design Meet VRM Objectives? ☐ Yes ☒ No

Visual Contrast Rating Data Sheet
Ocotillo Wind Energy Facility EIS/EIR

KEY OBSERVATION POINT DESCRIPTION

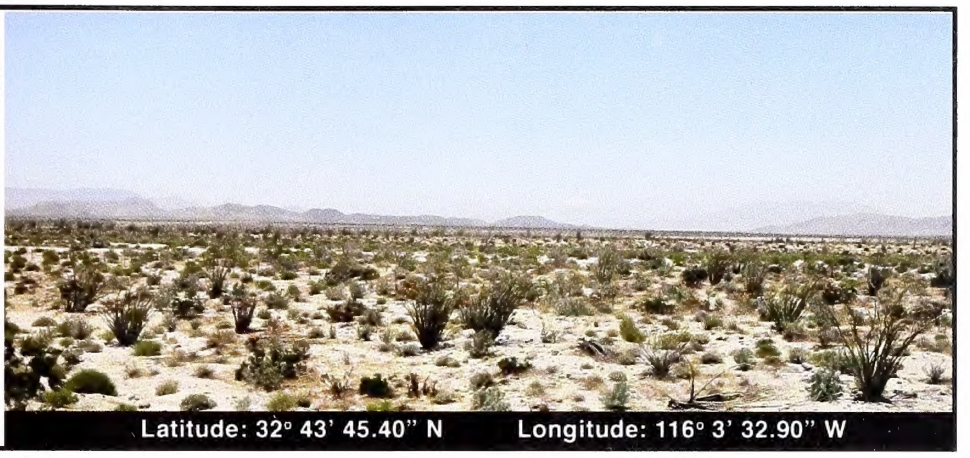
Key Observation Point
2

Location
Westbound Interstate 8, west of the I-8 split at the base of Mountain Springs Grade, viewing to the northwest.

VRM Class
III

Analyst
Michael Clayton

Date
May 22, 2010



CHARACTERISTIC LANDSCAPE DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Flat, horizontal	Patchy and irregular to continuous at distance	None apparent
Line	Horizontal (basin floor) to diagonal and irregular (Vulcan Hills & Coyote Mtns.)	Irregular to distinct horizontal as defined by the basin floor	None apparent
Color	Light to dark tans	Grasses: tans to pale yellow; Shrubs: greens, tans, and reddish hues	None apparent
Texture	Smooth to granular	Matte	None apparent

PROPOSED ACTIVITY DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Same	Same	Linear and geometric
Line	Same	Irregular to distinct horizontal as defined by the basin floor and access roads	Prominent vertical for supports and horizontal, vertical and diagonal for blades
Color	Same	Same	White to light gray
Texture	Same	Same	Smooth

DEGREE OF CONTRAST

	LANDFORM / WATER				VEGETATION				STRUCTURES			
	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG
Form	4				4							4
Line	4					4						4
Color	4				4						4	4
Texture	4				4						4	

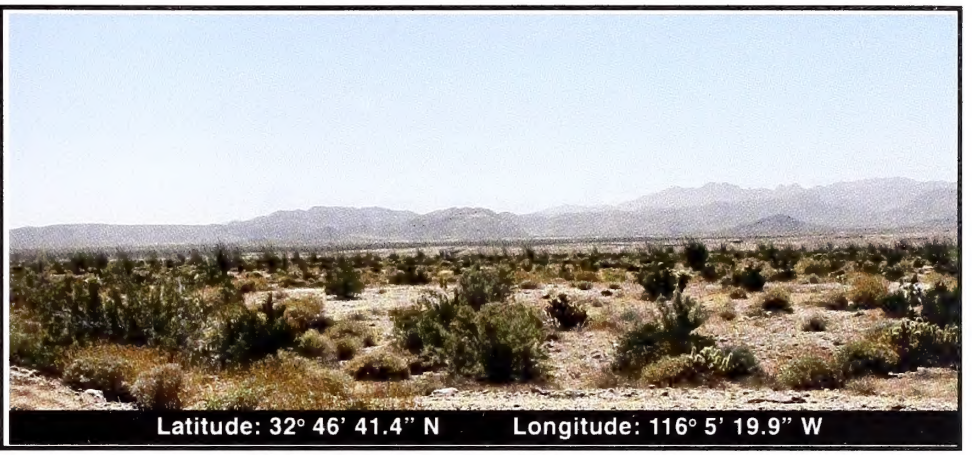
LEVEL OF CHANGE & VRM CLASS CONSISTENCY

Term: ☐ Short ☒ Long **Level of Change:** ☐ Very Low ☐ Low ☐ Moderate ☒ High

Does the Project Design Meet VRM Objectives? ☐ Yes ☒ No

Visual Contrast Rating Data Sheet
Ocotillo Wind Energy Facility EIS/EIR

KEY OBSERVATION POINT DESCRIPTION

Key Observation Point	
4	
Location	
Southbound County Road S2, near the northwest corner of the project area, viewing to the south-southeast.	
VRM Class	
III	
Analyst	
Michael Clayton	
Date	
May 22, 2010	

Latitude: 32° 46' 41.4" N Longitude: 116° 5' 19.9" W

CHARACTERISTIC LANDSCAPE DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Flat, horizontal	Patchy and irregular to continuous	None apparent
Line	Horizontal (basin floor) to diagonal and irregular (Jacumba Mountains)	Irregular to distinct horizontal as defined by the basin floor	None apparent
Color	Light to dark tans to bluish hues at distance	Grasses: tans to pale yellow; Shrubs: greens, tans, and reddish hues	None apparent
Texture	Smooth to granular	Matte	None apparent

PROPOSED ACTIVITY DESCRIPTION

	LANDFORM / WATER	VEGETATION	STRUCTURES
Form	Same	Same	Linear and geometric
Line	Same	Irregular to distinct horizontal as defined by the basin floor and access roads	Prominent vertical for supports and horizontal, vertical and diagonal for blades
Color	Same	Same	White to light gray
Texture	Same	Same	Smooth

DEGREE OF CONTRAST

	LANDFORM / WATER				VEGETATION				STRUCTURES			
	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG	NONE	WEAK	MODERATE	STRONG
Form	4				4							4
Line	4					4						4
Color	4				4						4	4
Texture	4				4						4	

LEVEL OF CHANGE & VRM CLASS CONSISTENCY

Term: ☐ Short ☒ Long **Level of Change:** ☐ Very Low ☐ Low ☐ Moderate ☒ High

Does the Project Design Meet VRM Objectives? ☐ Yes ☒ No

Appendix E-2

Visual Resources

Appendix E-2

Visual Resources

Appendix E-2

SECTION 1 - Approach to Baseline Analysis

GENERAL APPROACH

The technical approach to analyzing impacts to Visual Resources within the project viewshed was differentiated according to: (1) federal lands administered by the U.S. Department of Interior Bureau of Land Management (BLM) and (2) non-federal public and private lands (see Table E-2-1). The technical approach for that portion of the Proposed Project where lands are subject to administration by the BLM was based on the BLM's Visual Resource Management (VRM) System. This is a system that BLM requires for use on BLM-administered lands (the Proposed Project is located primarily on BLM lands) but cannot be applied to non-BLM lands where the BLM has no visual resource management authority. The technical approach used for views from non-BLM portions of the study area (such as Ocotillo Community Park and Anza-Borrego Desert State Park) were analyzed using the Visual Sensitivity–Visual Change (VS-VC) System. Although the two methodologies share similarities (each compares anticipated changes, which would occur as a result of the project, to existing sensitivity, and all elements of the VS-VC system are also part of the BLM VRM system), there are differences in both approach and terminology. The results for the two methodologies are summarized and presented as a series of foldout tables in Appendix E-1. Although the two methodologies share similarities (each compares anticipated changes, which would occur as a result of the project, to existing sensitivity), there are differences in both approach and terminology. The two methodologies are described in greater detail in the following sections.

Table E-2-1. Visual Resources Approach

Land Category	BLM Visual Resource Management (VRM) Methodology	Visual Sensitivity – Visual Change (VS-VC) Methodology
Federal Lands Administered by BLM	×	
State and Local Public Lands (e.g., Anza-Borrego Desert State Park)		×
Private Lands		×

BLM VISUAL RESOURCE MANAGEMENT (VRM) APPROACH

The Federal Land Policy and Management Act of 1976 (FLPMA) identifies scenic resources as one of the resources for which public lands should be managed. In order to satisfy its responsibilities with respect to scenic resources, the BLM's Visual Resource Management (VRM) Policy establishes a visual assessment methodology to inventory and manage scenic values on lands under its jurisdiction. The BLM manual M-8400 (Visual Resource Management), Handbook H-8410 (Visual Resource Inventory), Handbook H-8431 (Visual Resource Contrast Rating), and Instruction Memorandum 2009-167 (Application of the VRM Program to Renewable Energy) set forth the policies and procedures for determining visual resource values, establishing management objectives, and evaluating proposed actions for conformance with established objectives for BLM administered public lands.

The three primary elements of the BLM's VRM Policy are: (1) determining resource values, (2) establishing management objectives, and (3) evaluating the conformance of proposed actions with those objectives (each of which are described briefly below.

- ***Determining Resource Values:*** The primary means to establish visual resource values is through a Visual Resource Inventory (VRI) that results in the assignment of one of four VRI Classes (I to IV) to represent the relative visual value of an area. VRI Class I has the highest value and VRI Class IV has the lowest. VRI Class I is reserved for special congressional designations or administrative decisions such as Wilderness Areas, visually sensitive ACECs, or Wild and Scenic Rivers, etc. VRI Classes II through IV are determined through a systematic process that documents the landscape's scenic quality, public sensitivity and visibility. Rating units for each of the three factors are mapped individually, evaluated, and then combined through an over-layering analysis. The three factors contributing to the VRI Class determination are described below. The combined factors are then cross-referenced with the VRI Matrix to determine the applicable VRI Class. VRI classes are informational in nature and provide a baseline for existing conditions. They do not establish management direction and should not be used as a basis for constraining or encouraging surface disturbing activities. They provide the baseline data for existing conditions.
- ***Establishing Management Objectives***: VRM Classes (defined below) are determined through careful consideration of VRI Class designations (visual values), land use and demands, and the resource allocations and/or management decisions made in the applicable land use plan for a given area. VRM Class designations set the level of visual change to the landscape that may be permitted for any surface-disturbing activity. The objective of VRM Class I is to preserve the character of the landscape, whereas VRM Class IV provides for activities that require major modification to the landscape. VRI Classes are not intended to automatically become VRM Class designations. VRM Classes may be different then the VRI Classes assigned during the inventory, as the former should reflect a balance between the protection of visual values and other resource use needs. For example, an area with a VRI Class II designation may be assigned a VRM Class IV designation, based on its overriding value for mineral resource extraction or its designation as a utility corridor.
- ***Evaluating Conformance:*** Finally, proposed plans of development are evaluated for conformance to the VRM Class objectives through the use of the Visual Resource Contrast Rating process set forth within BLM Handbook H-8431-1.

Approach Under the CDCA Plan

The general approach described above varies slightly for the proposed OWEF due to the proposed project's location in the CDCA. The CDCA Plan, which is the land use plan covering the area where the project is located, does not contain a visual resource element, and has not established VRM Classes. When a project is proposed and there are no Resource Management Plan-approved VRM objectives, Interim VRM Classes must be established. These classes are developed using the process just described, but may be restricted in geographic scope to areas affected by the proposed action. If the area is also without a VRI, then one must be conducted in order to provide a baseline of data by which to analyze impacts and to inform appropriate designation of interim VRM Classes.

Factors Contributing to VRI Class Determination

VRI Class determination is based on an assessment of scenic quality, viewer sensitivity, and viewing distance zones. The following paragraphs address each of these contributing factors.

Scenic Quality is a measure of the overall impression or appeal of an area created by the physical features of the landscape, such as natural features (landforms, vegetation, water, color, adjacent scenery, and scarcity) and built features (roads, buildings, railroads, agricultural patterns, and utility lines). These features create the distinguishable form, line, color, and texture of the landscape composition that can be judged for scenic quality using criteria such as distinctiveness, contrast, variety, harmony, and balance. Table E-2-2 presents the VRM scenic quality rating components that are evaluated to arrive at one of three scenic quality ratings (A, B, or C) for a given landscape. Each landscape component is scored, and a score of 19 or higher results in a Class A scenic quality rating. A score of 12 to 18 results in a Class B scenic quality rating, while a score of 11 or less results in a Class C scenic quality rating. The three scenic quality classes are described as follows:

- **Scenic Quality Class A** – Landscapes that combine the most outstanding characteristics of the region.
- **Scenic Quality Class B** – Landscapes that exhibit a combination of outstanding and common features.
- **Scenic Quality Class C** – Landscapes that have features that are common to the region.

Viewer Sensitivity is a factor used to represent the value of the visual landscape to the viewing public, including the extent to which the landscape is viewed. For example, a landscape may have high scenic qualities but be remotely located and, therefore, seldom viewed. Sensitivity considers such factors as visual access (including duration and frequency of view), type and amount of use (See Table E-2-3), public interest, adjacent land uses, and whether the landscape is part of a special area (e.g., California Desert Conservation Area [CDCA] or Area of Critical Environmental Concern). The three levels of viewer sensitivity can generally be defined as follows.

- **High Sensitivity.** Areas that are either designated for scenic resources protection or receive a high degree of use (includes areas visible from roads and highways receiving more than 45,000 visits [vehicles] per year). Typically within the foreground/middleground (f/m) viewing distance (see Table E-2-4).
- **Medium Sensitivity.** Areas lacking specific, or designated, scenic resources protection but are located in sufficiently close proximity to be within the viewshed of the protected area. Includes areas that are visible from roads and highways receiving 5,000 to 45,000 visits (vehicles) per year. Typically within the background (b) viewing distance (see Table E-2-4).
- **Low Sensitivity.** Areas that are remote from populated areas, major roadways, and protected areas or are severely degraded visually. Includes areas that are visible from roads and highways receiving less than 5,000 visits (vehicles) per year.

All of the BLM lands in the vicinity of the Proposed Project and Alternatives are located within the CDCA. Because of the public importance imparted by this designation, BLM lands within the CDCA are generally assigned a High rating for Viewer Sensitivity.

Viewing Distance Zones. Landscapes are generally subdivided into three distance zones based on relative visibility from travel routes or observation points (see Table E-2-4). The f/m zone includes areas that are less than three to five miles from the viewing location. The f/m zone defines the area in which landscape details transition from readily perceived to outlines and patterns. The b zone is generally greater than five, but less than 15, miles from the viewing location. The b zone includes areas where landforms are the most dominant element in the landscape, and color and texture become subordinate. In order to be included within this distance zone, vegetation should be visible at least as patterns of light and dark. The seldom-seen (s/s) zone includes areas that are usually hidden from view as a result of topographic or vegetative screening or atmospheric conditions. In some cases, atmospheric and lighting conditions can reduce visibility and shorten the distances normally covered by each zone (BLM 1986b).

Table E-2-2. Visual Resource Management (VRM) Scenic Quality Rating

Component	Scenic Quality Rating		
Landform	High vertical relief (prominent cliffs, spires, or massive rock outcrops); severe surface variation; highly eroded formations (major badlands or dune systems); detail features dominant and exceptionally striking/intriguing. 5	Steep canyons, mesas, buttes, cinder cones, and drumlins; interesting erosional patterns or variety in size and shape of landforms; or detail features, which are interesting though not dominant or exceptional. 3	Low rolling hills, foothills, or flat valley bottoms or few or no interesting landscape features. 1
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. 5	Some variety of vegetation but only one or two major types. 3	Little or no variety or contrast in vegetation. 1
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. 5	Flowing, or still, but not dominant in the landscape. 3	Absent or present but not noticeable. 0
Color	Rich color combinations; variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields. 5	Some intensity or variety in colors and contrast of the soil, rock, and vegetation but not a dominant scenic element. 3	Subtle color variations, contrast, or interest; generally muted tones. 1
Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality. 5	Adjacent scenery moderately enhances overall visual quality. 3	Adjacent scenery has little or no influence on overall visual quality. 0
Scarcity	One of a kind, unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. 5+*	Distinctive, though somewhat similar to others within the region. 3	Interesting within its setting but fairly common within the region. 1
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony. 2	Modifications add little or no visual variety to the area and introduce no discordant elements. 0	Modifications add variety but are very discordant and promote strong disharmony. - 4
Scenic Quality Rating:	A = 19 or more	B = 12 to 18	C = 11 or less

* A rating of greater than 5 can be given but must be supported by written justification

Table E-2-3. Amount of Use Classifications

Type Area	High	Moderate	Low
Roads & Highways	More than 45,000 visits/yr	5,000 to 45,000 visits/yr	Less than 5,000 visits/yr
Rivers & Trails	More than 20,000 visits/yr	2,000-20,000 visits/yr	Less than 2,000 visits/yr
Recreation Sites	More than 10,000 visitor-days/yr	2,000-10,000 visitor-days/yr	Less than 2,000 visitor-days/yr

Table E-2-4. Distance Zones

f/m (foreground/middleground)..... 0 to 3–5 miles
b (background) ..... 5-15 miles
s/s..... seldom seen areas

Visual Resource Management Classes. The VRM class for a given area is typically arrived at through the use of a classification matrix similar to that presented in Table E-2-5. By comparing the scenic

quality, visual sensitivity, and distance zone, the specific VRM class can be determined. The exception to this process is the Class I designation, which is placed on special areas where management activities are restricted (e.g., wilderness areas).

VRM classes have been established for BLM lands in the vicinity of the Proposed Project.

Table E-2-5. Visual Resource Management (VRM) Classification Matrix

Visual Sensitivity Levels		High			Medium			Low
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III	III* / IV*	III	IV	IV	IV
	C	III	IV	IV	IV	IV	IV	IV
Distance Zones		f/m	b	s/s	f/m	b	s/s	s/s

* If adjacent areas are Class III or lower, assign Class III; if higher, assign Class IV.

The objectives of each VRM classification as stated in the BLM VRM *Visual Resource Inventory Manual* are as follows.

- **VRM Class I.** The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- **VRM Class II.** The objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **VRM Class III.** The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- **VRM Class IV.** The objective is to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements in the predominant natural features of the characteristic landscape.

The Interim VRM classes used for the present analysis were originally derived from the Visual Resource Inventory classes developed in the Yuha Desert / West Mesa Visual Resources Management Inventory, prepared by Michael Clayton & Associates in 2006 in advance of the Sunrise Powerlink Project EIS/EIR.

VISUAL SENSITIVITY-VISUAL CHANGE (VS-VC) APPROACH

Those portions of the Proposed Project and Alternatives or Key Observation Points (KOPs), not located on BLM land, were analyzed using the VS-VC methodology. Under this methodology, the Proposed Project and Alternatives were viewed from various public roads and vantage points to develop an overall assessment of the existing landscape character, visual quality, and viewing conditions by segment. Then, at each KOP, the existing landscape was characterized (for visual quality, viewer concern, and viewer exposure) and photographed. Each of the factors considered in the evaluation of the existing landscape

under the VS-VC methodology is generally expressed as low, moderate, or high as discussed in the following paragraphs. Table E-2-6 presents a graphical explanation of all of the contributing factors to the VS-VC methodology including how the information and conclusions are derived. This table is presented in the format of the summary tables that comprise Visual Resources Appendix E-1.

Visual Quality is a measure of the overall impression or appeal of an area as determined by the particular landscape characteristics such as landforms, rockforms, water features, and vegetation patterns, as well as associated public values. The attributes of variety, vividness, coherence, uniqueness, harmony, and pattern contribute to visual quality classifications of indistinctive (low), common (moderate), and distinctive (high). Visual quality is studied as a point of reference to assess whether a given project would appear compatible with the established features of the setting or would contrast noticeably and unfavorably with them. The visual quality ratings (low to high) are substantially based on the BLM's Scenic Quality Rating scale shown in Table E-2-2 above. Additional guidance for determining the scenic quality rating is also presented in Table E-2-7.

Viewer Concern addresses the level of interest or concern of viewers regarding an area's visual resources and is closely associated with viewers' expectations for the area. Viewer concern reflects the importance placed on a given landscape based on the human perceptions of the intrinsic beauty of the existing landforms, rockforms, water features, vegetation patterns, and even cultural features.

Viewer Exposure describes the degree to which viewers are exposed to views of the landscape. Viewer exposure considers landscape visibility (the ability to see the landscape), distance zones (proximity of viewers to the subject landscape), number of viewers, and the duration of view. Landscape visibility can be a function of several interconnected considerations including proximity to viewing point, degree of discernible detail, seasonal variations (snow, fog, and haze can obscure landscapes), time of day, and/or absence of screening features such as landforms, vegetation, and/or built structures. Even though a landscape may have highly scenic qualities, it may be remote, receiving relatively few visitors and, thus, have a lower degree of viewer exposure. Conversely, a subject landscape or project may be situated in relatively close proximity to a major road or highway utilized by a substantial number of motorists and yet still result in relatively low viewer exposure if the rate of travel speed on the roadway is high and viewing times are brief, or if the landscape is partially screened by vegetation or other features. Frequently, it is the subject area's proximity to viewers or *distance zone* that is of particular importance in determining viewer exposure. Landscapes are generally subdivided into three or four distance zones based on relative visibility from travel routes or observation points. Distance zones typically include foreground, middleground, and background. The actual number of zones and distance assigned to each zone is dependent on the existing terrain characteristics and public policy and is often determined on a project-by-project basis.

Overall Visual Sensitivity is a concluding assessment as to an existing landscape's susceptibility to an adverse visual outcome. A landscape with a high degree of visual sensitivity is able to accommodate only a lower degree of adverse visual change without resulting in a significant visual impact. A landscape with a low degree of visual sensitivity is able to accommodate a higher degree of adverse visual change before exhibiting a significant visual impact. Overall visual sensitivity is derived from a comparison of existing visual quality, viewer concern, and viewer exposure.

TABLE E-2-6
EXPLANATION OF VISUAL SENSITIVITY (VS) –VISUAL CHANGE (VC) SUMMARY TABLE
(SEE APPENDIX E-1 FOR COMPLETED SUMMARY TABLES)

VIEWPOINT		EXISTING VISUAL SETTING								VISUAL CHANGE					IMPACT SIGNIFICANCE	
				Viewer Exposure												
Key Observation Point (KOP)	Description	Visual Quality	Viewer Concern	Visibility	Distance Zone	Number of Viewers	Duration of View	Overall Viewer Exposure	Overall Visual Sensitivity	Description of Visual Change	Visual Contrast	Project Dominance	View Blockage	Overall Visual Change	Before Mitigation / After Mitigation	Mitigation
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

1. Key Observation Point (KOP). The key observation point column identifies (a) the viewpoint number, (b) the viewpoint name, (c) whether the viewpoint is for the Proposed Project or an Alternative, and (d) the figure(s) that correspond to the viewpoint.

2. Description. The description column describes the location of the viewpoint and direction of view with reference to roads or other landmarks.

3. Visual Quality. The visual quality column describes the quality of the existing landscape and can be rated low, low-to-moderate, moderate, moderate-to-high, or high. Additional guidance for each of these ratings is provided in Tables D.3-2 and D.3-3. Visual quality is one of three equally weighted contributing factors (along with viewer concern [Column 4] and viewer exposure [Column 9]) to the assessment of overall visual sensitivity (Column 10). While the assessment of visual quality considers several factors, ultimately, the rating is determined by analyst judgment.

4. Viewer Concern. Viewer concern is assigned a rating hierarchy similar to visual quality (low to high) and is based on any known information about the viewing population, existing land uses, and plan or policy designations that might indicate public importance. Ultimately, the rating is determined by analyst judgment.

5. Visibility. Visibility is one of four factors contributing to the overall assessment of viewer exposure. As for visual quality, visibility is assigned one of five ratings (low to high). Visibility is determined by analyst judgment, based on field evaluation of viewing proximity, visible detail, seasonal variations, air quality, lighting, and presence or absence of screening features (land and vegetation).

6. Distance Zone. Distance zone is the second of four factors contributing to the overall assessment of viewer exposure and is assigned one of three ratings (foreground, middleground, or background). The determination of the viewing distance zone (the distance from the viewpoint to the transmission line), as defined in Table D.3-4, is determined by map analysis.

7. Number of Viewers. Number of viewers is the third of four factors contributing to the overall assessment of viewer exposure and can range from low to high. Number of viewers is generally a qualitative assessment made by the analyst though it can draw from quantitative data such as amount of use information for roads and highways, rivers and trails, and recreation sites (see Table D.3-3). It also includes field observations and a general understanding of potential residential viewers.

8. Duration of View. Duration of view is the fourth of four equally weighted factors contributing to the overall assessment of viewer exposure. The duration of view is a qualitative assessment made by the analyst and essentially denotes the relative length of the viewing experience (brief, brief-to-moderate, moderate, moderate-to-extended, or extended).

9. Overall Viewer Exposure. This is a summation of the four contributing and equally weighted factors of visibility, distance zone, number of viewers, and duration of view. The determination is based on analyst judgment. It is intuitive that if all contributing factors are rated high, the summation will also be high. It is similarly true if all four inputs are moderate or all four are low. However, analyst experience becomes key when the inputs are mixed values.

10. Overall Visual Sensitivity. This is a summation of the three contributing and equally weighted factors of visual quality, viewer concern, and overall viewer exposure. The determination is based on analyst judgment. As with overall viewer exposure, it is intuitive that if all contributing factors are rated high, the summation will also be high. It is similarly true if all three inputs are moderate or all three are low. However, analyst experience becomes key when the inputs are mixed values.

11. Description of Visual Change. This column provides a brief description of the change that would be caused by the proposed or subject action. It may include a description of the components contributing to the change as well as the effects on the existing landscape. Often, the description will reference visual contrast, project dominance and/or view blockage—the three factors contributing to overall visual change. The format is typically a narrative of the ratings identified in the subsequent three columns (#'s 12, 13, and 14).

12. Visual Contrast. Visual Contrast is the first of three, equally weighted factors contributing to the overall assessment of visual change and is assigned one of five ratings (low, low-to-moderate, moderate, moderate-to-high, or high). Visual contrast is a qualitative assessment made by the analyst and describes the degree to which a project's visual characteristics differ from those established in the existing landscape.

13. Project Dominance. Project dominance is the second of three factors contributing to the overall assessment of visual change and is assigned one of five ratings (subordinate, subordinate to co-dominant, co-dominant, co-dominant to dominant, or dominant). Project dominance is a qualitative assessment made by the analyst and is a measure of feature's apparent size relative to other visible landscape features and the total field of view.

14. View Blockage. Project Dominance is the third of three factors contributing to the overall assessment of visual change and is assigned one of five ratings ranging from low to high. View blockage is a qualitative assessment made by the analyst and describes the extent to which any previously visible landscape features are either blocked from view or the views of those features are in some way impaired, as a result of the project's scale and/or position.

15. Overall Visual Change. This is a summation of the three contributing and equally weighted factors of visual contrast, project dominance, and view blockage. The determination is based on analyst judgment. As with overall visual sensitivity, it is intuitive that if all contributing factors are rated high, the summation will also be high. It is similarly true if all three inputs are moderate or all three are low. However, analyst experience becomes key when the inputs are mixed values.

16. Impact Significance Before/After Mitigation. This column identifies impact significance (as a function of overall visual sensitivity and visual change. This determination is based on analyst judgment though Table D.3-8 does illustrate the general interrelationships between overall visual sensitivity ratings and overall visual change ratings. Impact significance after mitigation is applied, is also presented in this column.

17. Mitigation. This column lists any mitigation measures that have been identified (in the text) as applicable to the impact.

SOURCE OF COLUMN DATA

Column

1. **Analyst assigned**
2. **Analyst determination**
3. **Analyst determination**
4. **Analyst determination**
5. **Analyst determination**
6. **Analyst determination**
7. **Analyst determination**
8. **Analyst determination**
9. **5 + 6 + 7 + 8 + Analyst Interpretation**
10. **3 + 4 + 9 + Analyst Interpretation**
11. **Analyst determination**
12. **Analyst determination**
13. **Analyst determination**
14. **Analyst determination**
15. **12 + 13 + 14 + Analyst Interpretation**
16. **10 + 15 + Analyst Interpretation**
17. **Determination based on analysis**

Table E-2-7. Visual Quality Rating Guidance

Visual Quality Rating	Visual Quality Guidance
High	• Landscape elements (landforms, vegetative patterns, water characteristics and cultural features) have high visual appeal • Landscape has high degrees of variety, vividness, intactness, harmony, and uniqueness (attributes) • Distinctive landscape that attracts people to view
Moderate-to-High	• Landscape elements have moderate-to-high visual appeal • Landscape attributes have a mix of moderate and high values • Landscape may contain built features that neither complement nor detract from overall visual quality
Moderate	• Landscape elements are moderately appealing • Landscape attributes have common or ordinary values • Landscape may contain discordant built features but they are subordinate
Low-to-Moderate	• Landscape elements have low-to-moderate appeal • Landscape has weak or missing attributes • Landscape may have prominent, though not dominant discordant built features
Low	• Landscape elements have low-to-no appeal • Landscape is missing some attributes • Landscape is dominated by discordant built features

SECTION 2 - Approach to Impact Analysis

The factors considered in determining impacts on visual resources included: (1) scenic quality of the Proposed Project site and vicinity; (2) available visual access and visibility, and frequency and duration that the landscape is viewed; (3) viewing distance and degree to which Proposed Project components would dominate the view of the observer; (4) resulting contrast of the Proposed Project components or activities with existing landscape characteristics; (5) the extent to which Proposed Project features or activities would block views of higher value landscape features; and (6) the level of public interest in the existing landscape characteristics and concern over potential changes.

An *adverse visual impact* occurs within public view when: (1) an action perceptibly changes existing features of the physical environment so that they no longer appear to be characteristic of the subject locality or region; (2) an action introduces new features to the physical environment that are perceptibly uncharacteristic of the region and/or locale; or (3) aesthetic features of the landscape become less visible (e.g., partially or totally blocked from view) or are removed. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The degree of the visual impact depends upon how noticeable the adverse change may be. The noticeability of a visual impact is a function of project features, context, and viewing conditions (angle of view, distance, primary viewing directions, and duration of view).

Impacts on visual resources within the study area could result from various activities including structure and line construction, substation construction, establishment of construction staging areas and access roads, and Proposed Project operation or presence of the built facilities. As stated above, the Visual Resources technical approach utilizes two technical methodologies — the BLM's VRM System methodology for BLM-administered public lands, and the VS-VC System methodology for all other public and private lands throughout the study area.

The approach to impact assessment under each methodology is discussed in the following sections. The results of the impact assessment under the two methodologies are summarized and presented as a series of foldout tables in Appendix E-1.

BLM VRM CONTRAST ANALYSIS METHODOLOGY

Under the BLM's VRM methodology, the proposed action and alternatives were analyzed for their effects on visual resources using an assessment of the visual contrast within the landscape created by components of the project. Impacts to the inventoried visual resource values and conformance with Interim VRM Class Objectives are evaluated through a contrast rating process described below. The degree to which the proposed action and alternatives adversely affect the visual quality of a landscape is directly related to the amount of visual contrast between the alternative and the existing landscape character. Visual Contrast Ratings were conducted using the BLM's VRM System manuals (BLM 1984, 1986a). The Visual Contrast Rating Forms are provided in Appendix VR-3. Under the VRM System, the degree to which a project or activity affects the visual quality of a landscape depends on the visual contrast created between the project components and the major features, or predominant qualities, in the existing landscape. Visual contrast evaluates a project's consistency with the visual elements of form, line color, and texture already established in the viewshed. In a sense, visual contrast indirectly indicates a particular landscape's ability to absorb a project's components and location without resulting in an uncharacteristic appearance. Other elements that are considered in evaluating visual contrast include the degree of natural screening by vegetation and landforms; placement of structures relative to existing vegetation, landforms and other structures; distance from the point of observation; and relative size or scale of a project. Once the degree of anticipated contrast is determined (ranging from none to strong), a conclusion on the overall level of change is made (ranging from very low to high) and compared to the applicable VRM class objective for a determination of conformance with the Interim VRM Class objectives.

For the Proposed Project, the Interim VRM Class was determined to be **VRM Class III**. The management objective for VRM Class III (as previously noted) is as follows:

> The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

BLM's VRM Policy does not require VRM Classes to be used as a method to preclude all other resource development. However, it does require that visual values be considered and that those considerations be documented as part of the decision-making process, and that if resource development/extraction is approved, a reasonable attempt must be made to meet the VRM objectives for the area in question and to minimize the visual impacts of the proposal. Because the CDCA Plan does not have Resource Management Plan-approved VRM objectives, a land use plan amendment is not necessarily required to address instances of non-conformance. Nevertheless, the overall goal remains minimizing visual impacts through mitigation measures so that any adverse contrasts can be reduced in an attempt to meet the applicable Interim VRM Class III objectives. In addition to the permanent visual contrast created in the landscape, the proposed action and alternatives are analyzed for adverse effects due to lighting and glare, visible dust plumes, as well as temporary construction-related disturbances.

VISUAL SENSITIVITY – VISUAL CHANGE (VS-VC) METHODOLOGY

Under the VS-VC methodology, field analysis at each KOP included assessment of visual contrast, project dominance, and view blockage. Subsequently, a conclusion was made regarding the extent of overall visual change, and taken together with the existing landscape's visual sensitivity, the level of probable visual impact significance was determined. In most cases, a visual simulation was also prepared with which to further evaluate the preliminary impact determination. A conclusion on initial impact

significance was then reached. If a determination was made that the resulting impact would be significant, the impact situation was further evaluated against the application of feasible mitigation measures in an effort to reduce the visual impact to a level of less than significant. A final conclusion on impact significance was then reached.

Each of the key factors considered in the evaluation of visual change is generally expressed as low, low-to-moderate, moderate, moderate-to-high, or high and is discussed below (also, see Table E-2-6 provided above for additional discussion of the visual change factors).

Visual Contrast describes the degree to which a project's visual characteristics or elements (consisting of form, line, color, and texture) differ from the same visual elements established in the existing landscape. The degree of contrast can range from low to high. The presence of forms, lines, colors, and textures in the landscape similar to those of a project's indicates a landscape more capable of accepting those project characteristics than a landscape where those elements are absent. This ability to accept alteration is often referred to as visual absorption capability and typically is inversely proportional to visual contrast.

Project Dominance is a measure of a feature's apparent size relative to other visible landscape features and the total field of view. A feature's dominance is affected by its relative location in the field of view and the distance between the viewer and the feature. The level of dominance can range from subordinate to dominant.

View Blockage or ***Impairment*** describes the extent to which any previously visible landscape features are blocked from view as a result of a project's scale and/or position. Blockage of higher quality landscape features by lower quality project features causes adverse visual impacts. The degree of view blockage can range from none to high.

Overall Visual Change is a concluding assessment as to the degree of change that would be caused by a project. Overall visual change is derived by combining the three equally weighted factors of visual contrast, project dominance, and view blockage. Overall visual change can range from low to high.

SIGNIFICANCE CRITERIA

The criteria used to assess the significance of visual impacts resulting from a project take into consideration the factors described in the previous section, as well as federal, state, and local policies and guidelines pertaining to visual resources. Appendix G of the CEQA Guidelines identifies four circumstances that can lead to a determination of significant visual impact. These have been adapted as set forth below for the analysis that follows.

- Project construction or the long-term presence of project components would cause a substantial effect on a scenic vista.
- Project construction or the long-term presence of project components would substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within view of a State Scenic Highway.
- Project construction or the long-term presence of project components would substantially degrade the existing visual character or quality of the site and its surrounding landscape. [Note: Substantial degradation results from higher levels of visual contrast, project dominance, and view blockage. Visual contrast relates to spatial characteristics, visual scale, texture, form, line, and color.]
- Project construction or the long-term presence of a project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or be hazardous to motorists or pedestrians.

Three additional criteria that can lead to a determination of significant visual impact include:

- The presence of the Proposed Project would result in a long-term (greater than three years) inconsistency with established (or interim) BLM VRM class objectives (applies only to public lands administered by the BLM). This would typically occur where a landscape with a relatively high visual quality and viewer concern is noticeably altered.
- Construction of the Proposed Project or the presence of project components would result in an inconsistency with local regulations, plans, and standards applicable to the protection of visual resources.
- The presence of the Proposed Project would add to a cumulative visual alteration.

Under the **VS-VC** methodology, the degree of impact significance is a function of overall visual sensitivity and visual change. Table E-2-8 illustrates the general interrelationship between visual sensitivity and visual change and is used as a consistency check between individual KOP evaluations. Actual parameter determinations (e.g., visual contrast, project dominance, and view blockage) are based on analyst experience and site-specific circumstances.

Table E-2-8. Visual Sensitivity–Visual Change Guidance for Review of Impact Significance

Overall Visual Sensitivity	Overall Visual Change				
	Low	Low-to-Moderate	Moderate	Moderate-to-High	High
Low	Not Significant[1]	Not Significant	Adverse but Less Than Significant	Adverse but Less Than Significant	Adverse but Less Than Significant
Low to Moderate	Not Significant	Adverse but Less Than Significant	Adverse but Less Than Significant	Adverse but Less Than Significant	Adverse and Potentially Significant
Moderate	Adverse but Less Than Significant[2]	Adverse but Less Than Significant	Adverse but Less Than Significant	Adverse and Potentially Significant	Adverse and Potentially Significant
Moderate-to-High	Adverse but Less Than Significant	Adverse but Less Than Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant[4]
High	Adverse but Less Than Significant	Adverse and Potentially Significant[3]	Adverse and Potentially Significant	Significant[4]	Significant

1 **Not Significant** Impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.
2 **Adverse but Less Than Significant** Impacts are perceived as negative but do not exceed environmental thresholds.
3 **Adverse and Potentially Significant** Impacts are perceived as negative and may exceed environmental thresholds depending on project and site-specific circumstances.
4 **Significant** Impacts with feasible mitigation may be reduced to levels that are less than significant or avoided altogether. Without mitigation, significant impacts would exceed environmental thresholds.

While the interrelationships presented in Table E-2-8 are intended as guidance only, it is reasonable to conclude that lower visual sensitivity ratings paired with lower visual change ratings will generally correlate well with lower degrees of impact significance when viewed onsite. Conversely, higher visual

sensitivity ratings paired with higher visual change ratings will tend to result in higher degrees of visual impact.

Implicit in this rating methodology is the acknowledgment that, for a visual impact to be considered significant, two conditions generally exist: (1) the existing landscape is of reasonably high quality and is relatively valued by viewers and (2) the perceived incompatibility of one or more Proposed Project elements or characteristics tends toward the high extreme, leading to a substantial reduction in visual quality.

VISUAL SIMULATIONS

To prepare the visual simulations for each KOP, appropriately scaled polygons were first constructed in Google Earth at each structure location. A Google Earth perspective view was then achieved to match a KOP existing view photograph. The perspective view image was then layered with the existing view image and the constructed polygons were used as guides for appropriately scaling and placing individual wind turbine images into the existing view photograph, which was then saved as the simulation image. A similar process was used for the access roads.

MITIGATION APPROACH

Mitigation for visual resources impacts resulting from energy infrastructure and similar types of industrial facilities typically focuses on methods to minimize the visibility of the resulting visual change either by screening the change from view or by blending the change with the background (by selective use of coloration and/or screening). By their very nature, wind turbines tend to be large and exposed, and thus, difficult to either hide from view or blend into the background. Frequently, the only way to avoid a significant visual impact from a wind turbine is to re-locate the development to a less visible site, though in many situations this measure is not feasible since turbine locations are dictated by available wind resources and wind dynamics. Also problematic is the construction of permanent access and structure spur roads and "temporary" cleared areas that become persistent in arid and semi-arid landscapes where vegetation recruitment and growth are slow. These features often cause unnatural and discordant demarcations in the vegetation landscape that increase the visual contrast of project activities.

However, in some cases there are techniques that can reduce the prominence of land scarring and vegetation changes though they may not reduce the impact to a level that is less than significant. The following techniques were considered where appropriate for the Proposed Project and alternatives:

- Require revegetation and restoration efforts to mitigate the unnatural demarcation in vegetation landscapes caused by removal of or changes in the vegetation within the project area as a result of clearing and maintenance.
- Consider alternative low-impact construction techniques to minimize prominent land scarring visible to sensitive viewpoints.

For each of the visual impacts identified, the mitigation approaches discussed above were evaluated for applicability and likelihood of success. In almost all cases, the combination of existing landscape characteristics and structure prominence and visibility resulted in impacts that could not be mitigated. However, where mitigation opportunities were identified, they are discussed.

References

U.S. Department of the Interior, Bureau of Land Management (BLM). 1986. *Visual Resource Inventory Manual H-8410-1.*

_____. 1986. *Visual Resource Contrast Rating Manual 8431.*

_____. 1984. *Visual Resource Management Manual 8400.*

Appendix F

Noise

Calculation Service		Date:	May 12th, 2011
Navcon Project #:	102360		
Project Engineer:	Hans J. Forschner		

Navcon Engineering Network	Phone:	714-441-3488
701 W. Las Palmas Dr.	Email:	forschner@navcon.com
Fullerton, CA 92835	Web-Site:	www.navcon.com

Customer:

Aspen Environmental Group	Contact:	Lisa Blewitt, Jon Davidson
30423 Canwood Street # 215	Phone:	818-597-3407
Agoura Hills, CA 91301 USA	Email:	LBlewitt@aspeneg.com
	Web-Site:	www.aspeneg.com

Work Sheets:

Caculation Parameter	Documentation of Calculation Parameters
Source Input	Summary of the Noise Source Sound Power Level, Alternative 1, 2 & 3
Calc Results Alternative 1	158 Turbines Receiver Results for different metreological conditions
Calc Results Alternative 2	137 Turbines Receiver Results for different metreological conditions
Calc Results Alternative 3	105 Turbines Receiver Results for different metreological conditions

Software Version:	SoundPLAN 7.0 - Kernel version: 4/19/2011

Prediction Model 1:	ISO 9613 -2 "Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation", 1993
Prediction Model:	ISO 9613 -2 "Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation", 1993
Air absorption:	ISO 9613-1 "Acoustics -- Attenuation of sound during propagation outdoors -- Part 1: Calculation of the absorption of sound by the atmosphere"
Environment:	
Air pressure	1013.25 mbar
rel. Humidity	(1) 50%, (2) 40, (3) 10%, (4) 5%
Temperature	(1) 10 °C = 50 °F, (2) 20 °C = 68 °F, (3) 30 °C = 86 °F, (4) 40 °C = 104 °F
Maximum Screening Loss:	
Single Barrier	20 dB
Multiple Barrier	25 dB
Screening Method:	Vertical and Horizontal Screening Activated
Number of Reflections:	3
Receiver Height above Ground	2 m
Maximum Search:	4000 m
Assessment:	Leq, Ldn
Ground:	Ground g=0.4, 40 % absoptive / 60 % reflective

Wind Turbine Noise Data	1/1 Octave Band Sound Power Level [dB]										
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Lw		
Siemens SWT-2.3-101 7+ m/s Std.	109.7	110.5	106.7	105.3	102.1	97.2	90.2	88.3	114.9	dBL	Standard Sound Power Level
	83.5	94.4	98.1	102.1	102.1	98.4	91.2	87.2	107.0	dBA	
Siemens SWT-2.22-101 7+ m/s Std.	109.6	110.1	105.6	104.0	101.1	96.3	89.6	87.8	114.4	dBL	Derated Turbine - Sound Power Level
	83.4	94.0	97.0	100.8	101.1	97.5	90.6	86.7	106.0	dBA	

Total Number of Wind Turbines:

158 Turbine Alternative 1
137 Turbine Alternative 2
105 Turbine Alternative 3

Derated Turbines:

2 Turbine Alternative 1
2 Turbine Alternative 2
0 Turbine Alternative 3

Predicted Noise Levels, 158 Wind Turbine Locations

			Model		ISO 9613		ISO 9613		ISO 9613		ISO 9613		Nord 2000	
			Temp [C/F]		10 C / 50 F		20 C / 68 F		30 C / 86 F		40 C / 104 F		10 C / 50 F	
			Humidity [%]		50%		40%		10%		5%		50%	
Name	X m	Y m	Z m	TH m	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq
Location L-1	593509.8	3624509.6	123.8	119.8	49.5	43.1	48.9	42.4	47.1	40.7	45.8	39.4	51.1	44.7
Location L-2	592008.4	3623765.5	156.1	152.1	48.7	42.3	47.9	41.5	46.0	39.6	44.6	38.2	50.8	44.4
Location L-3	592886.2	3622306.7	163.6	159.6	46.2	39.8	45.2	38.8	43.2	36.7	41.6	35.2	48.4	42.0
Location L-4	596062.7	3620974.4	120.2	116.2	44.2	37.8	43.3	36.9	41.4	35.0	39.9	33.5	47.0	40.6

X, Y UTM Coordinates [m]
Z Recevier Height above sea level [m]
TH Terrain Height [m]
Ldn Day Night Level (10 dB correction for night time 10 pm - 7 am)
Leq Average Sound Level dBA

Nord 2000 - Always 8 m/s downwind

Difference to ISO 9613 10C 50%

ISO 9613		ISO 9613		ISO 9613		ISO 9613		Nord 2000	
10 C / 50 F		20 C / 68 F		30 C / 86 F		40 C / 104 F		10 C / 50 F	
50%		40%		10%		5%		5%	
Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq
0.0	0.0	0.6	0.7	2.4	2.4	3.7	3.7	-1.6	-1.6
0.0	0.0	0.8	0.8	2.7	2.7	4.1	4.1	-2.1	-2.1
0.0	0.0	1.0	1.0	3.0	3.1	4.6	4.6	-2.2	-2.2
0.0	0.0	0.9	0.9	2.8	2.8	4.3	4.3	-2.8	-2.8

Predicted Noise Levels, 137 Wind Turbine Locations

			Model		ISO 9613		ISO 9613		ISO 9613		ISO 9613		Nord 2000	
			Temp [C/F]		10 C / 50 F		20 C / 68 F		30 C / 86 F		40 C / 104 F		10 C / 50 F	
			Humidity [%]		50%		40%		10%		5%		50%	
Name	X m	Y m	Z m	TH m	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq
Location L-1	593509.8	3624509.6	123.8	119.8	49.3	42.9	48.6	42.2	46.9	40.5	45.6	39.2	50.8	44.4
Location L-2	592008.4	3623765.5	156.1	152.1	48.7	42.3	47.8	41.4	46.0	39.6	44.6	38.1	50.8	44.4
Location L-3	592886.2	3622306.7	163.6	159.6	46.0	39.6	45.1	38.7	43.1	36.6	41.5	35.1	48.1	41.7
Location L-4	596062.7	3620974.4	120.2	116.2	43.4	37.0	42.6	36.2	40.7	34.3	39.3	32.9	46.5	40.1

X, Y UTM Coordinates [m]
Z Recevier Height above sealevel [m]
TH Terrain Height [m]
Ldn Day Night Level (10 dB correction for night time 10 pm - 7 am)
Leq Average Sound Level dBA

Nord 2000 - Always 8 m/s downwind

Difference to ISO 9613 10C 50%

ISO 9613		ISO 9613		ISO 9613		ISO 9613		Nord 2000	
10 C / 50 F		20 C / 68 F		30 C / 86 F		40 C / 104 F		10 C / 50 F	
50%		40%		10%		5%		5%	
Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq
0.0	0.0	0.7	0.7	2.4	2.4	3.7	3.7	-1.5	-1.5
0.0	0.0	0.9	0.9	2.7	2.7	4.1	4.2	-2.1	-2.1
0.0	0.0	0.9	0.9	2.9	3.0	4.5	4.5	-2.1	-2.1
0.0	0.0	0.8	0.8	2.7	2.7	4.1	4.1	-3.1	-3.1

APPENDIX F: Construction / Operation Stationary Source Noise Composites

Project Number: 3116
Project Name: Ocotillo Express Wind Project

Equipment Types from Data Request 2, Q4; Quanties from Data Request 1, Q1-14. O&M and Substation equipment per Will Walters 1/11/2011.
Equipment noise levels and usage factors from FHWA Highway Construction Noise Handbook, Final Report, August 2006.
Table 9.1, Actual Measured levels, unless unavailable then Spec. 721.560 levels.
Use per hour assumed based on RCNM default values.

CONSTRUCTION

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Road Construction						
Road Grader (Grader)	85	40	2	2640	49.6	Distance from L1 to closest road is 0.5 mile
Sheepsfoot Roller (Roller)	80	20	2	2640	41.6	
Medium Dozer (Dozer)	82	40	1	2640	43.6	
		Total Quantity of Equipment:	5			
		Peak Unmitigated Composite Leq(h):	**51.1**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA
Cumulative (Road Construction + Ambient)					
Road Construction	51.1	100	1	50	51.1
Ambient (daytime)	41	100	1	50	41.0
	Total Quantity of Equipment:		2		
	Peak Unmitigated Composite Leq(h):		**51.5**		

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Road Construction						
Road Grader (Grader)	85	40	2	2400	50.4	Distance from Jucumba Wilderness to
Sheepsfoot Roller (Roller)	80	20	2	2400	42.4	closest WTG is 0.45 mile
Medium Dozer (Dozer)	82	40	1	2400	44.4	
		Total Quantity of Equipment:	5			
		Peak Unmitigated Composite Leq(h):	**51.9**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA
Cumulative (Road Construction + Ambient)					
Road Construction	51.9	100	1	50	51.9
Ambient (daytime)	47	100	1	50	47.0
	Total Quantity of Equipment:		2		
	Peak Unmitigated Composite Leq(h):		**53.1**		

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Foundation Construction						
Medium Dozer (Dozer)	82	40	2	2640	46.6	Distance from L1 to closest wind turbine is 0.5 mile
Excavator	81	40	1	2640	42.6	Not included in DR#1, Q1-14, but listed in DR#2, Q4
Compaction Roller (Roller)	80	20	2	2640	41.6	
Water Truck (Flat-Bed Truck)	74	40	1	2640	35.6	
		Total Quantity of Equipment:	6			
		Peak Unmitigated Composite Leq(h):	**49.1**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Erection						
Large Crane (Crane)	81	16	2	2640	41.6	Distance from L1 to closest wind turbine is 0.5 mile
Medium Crane (Crane)	81	16	2	2640	41.6	
		Total Quantity of Equipment:	4			
		Peak Unmitigated Composite Leq(h):	**44.6**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Grading of O&M Complex						
980 Loader (Front End Loader)	79	40	3	8448	35.2	Distance from L2 to O&M complex is 1.6 miles
Compaction Roller (Roller)	80	20	2	8448	31.5	
Grader (Grader)	85	40	2	8448	39.5	
Total Quantity of Equipment:			7			
Peak Unmitigated Composite Leq(h):			**41.3**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Civil/Building of O&M Complex						
14 Ton Crane (Crane)	81	16	2	8448	31.5	Distance from L2 to O&M complex is 1.6 miles
150 Ton Crane (Crane)	81	16	2	8448	31.5	
Forklift (Front End Loader)	79	40	1	8448	30.5	
Manlift (Man Lift)	75	20	4	8448	29.5	
Total Quantity of Equipment:			9			
Peak Unmitigated Composite Leq(h):			**36.8**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Grading of Substation						
980 Loader (Front End Loader)	79	40	3	6336	37.7	Distance from L2 to substation is 1.2 miles
Compaction Roller (Roller)	80	20	2	6336	34.0	
Grader (Grader)	85	40	2	6336	42.0	
Total Quantity of Equipment:			7			
Peak Unmitigated Composite Leq(h):			**43.8**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Civil of Substation						
14 Ton Crane (Crane)	81	16	1	6336	31.0	Distance from L2 to substation is 1.2 miles
Driller (Drill Rig Truck)	79	20	2	6336	33.0	
Ditch Digger (Backhoe)	78	40	2	6336	35.0	
Forklift (Front End Loader)	79	40	1	6336	33.0	
Tractor (Tractor)	84	40	2	6336	41.0	
Total Quantity of Equipment:			8			
Peak Unmitigated Composite Leq(h):			**43.2**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Electrical of Substation						
14 Ton Crane (Crane)	81	16	2	6336	34.0	Distance from L2 to substation is 1.2 miles
150 Ton Crane (Crane)	81	16	2	6336	34.0	
Forklift (Front End Loader)	79	40	1	6336	33.0	
Manlift (Man Lift)	75	20	4	6336	32.0	
Total Quantity of Equipment:			9			
Peak Unmitigated Composite Leq(h):			**39.3**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Transformer Assembly and Processing of Substation						
50 Ton Crane (Crane)	81	16	2	6336	34.0	Distance from L2 to substation is 1.2 miles
Forklift (Front End Loader)	79	40	1	6336	33.0	
Manlift (Man Lift)	75	20	1	6336	26.0	
Total Quantity of Equipment:			4			
Peak Unmitigated Composite Leq(h):			**36.9**			

Construction Equipment	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Activity: Concrete Batch Plant						
Concrete Batch Plant	83	15	1	8976	29.7	Distance from L2 to batch plant is 1.7 miles
Total Quantity of Equipment:			1			
Peak Unmitigated Composite Leq(h):			**29.7**			

OPERATIONS AND MAINTENANCE

O&M	dBA @ 50 ft	Hour (%)	Quantity	Receptor feet	Leq(h) dBA	
Crane	81	16	1	2,640	38.6	Distance from L1 to closest wind turbine is 0.5 mile
Manlift	75	20	1	2,640	33.6	
		Total Quantity of Equipment:	2			
		Peak Unmitigated Composite Leq(h):	**39.8**			

Assumptions: Worst-case O&M estimated when two pieces of equipment operating simultaneously in the same area. Assume grader and pick-up truck (road maintenance) or crane and man lift (turbine maintenance).

O&M	Lmax Ref @ 50 ft	Use Per (%)	Quantity	Distance to feet	Equip dBA	
Grader	85	40	1	2,640	46.6	Distance from L1 to closest road is 0.5 mile
Pick-up Truck	75	40	1	2,640	36.6	
		Total Quantity of Equipment:	2			
		Peak Unmitigated Composite Leq(h):	**47.0**			

Substation	Lmax Ref dBA @ 50 ft	Use Per Hour (%)	Quantity	Distance to Receptor feet	Equip Leq(h) dBA	
Transformer	66	100	1	6,336	23.9	Distance from L2 to substation is 1.2 miles
Transformer	66	100	1	6,236	24.1	
		Total Quantity of Equipment:	2			
		Peak Unmitigated Composite Leq(h):	**27.0**			

Note: Two transformers, 100 feet apart, generating 86 dBA at the transformer (~5 feet), which is equivalent to 66 dBA at 50 feet.

California Vehicle Noise Calculation: Construction Traffic Mix (Trucks+Autos)

Project Number: 3116
Project Name: Ocotillo Express Wind Project
Model Description: Reference Energy Mean Emission Levels (REMEL) for California Vehicle Noise, Caltrans Technical Noise Supplement (11/09): Figure 5-9
Model Assumptions: no shielding, no barrier, no traffic flow adjustment (result : highest noise); uniform vehicle class mix

EXISTING CONDITIONS (2012)

			Vehicle Distribution Fractions				Number of Hours: (hrs)		
			HD Tks	MD Tks	Autos		7am-7pm	7pm-10pm	10pm-7am
Distance: >15m Ref:	15.0	(m)	11.2	4.8	84.0	Fraction	12	3	9
Drop-off (alpha 0.5=soft, 0=hard):	0.00	(alpha)	83.8	80.1	72.7	REMEL (dBA)	Backgd Traffic: (%)		
Speed:	55	(mph)					7am-7pm	7pm-10pm	10pm-7am
	89	(kph)					83	4	13

SEGMENT	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	65 Contour XX CNEL (ft)	60 Contour YY CNEL (ft)	55 Contour ZZ CNEL (ft)
W. Evans Hewes Highway, East of Imperial Highway (2012)	260	26.0	18.0	3.5	3.8	58.18	56.58	49.43	49.78	57.9	*16.6*	*35.7*	*77.0*

Source/Assumptions: Traffic Report (LLG, 2011) - Existing Conditions Construction Year (2012) for ADT. Assumes a 5% growth factor from existing conditions (Dec. 2010). Vehicle distribution assumed to be the same as I-8 e/o Ocotillo from Imperial County Noise Element, 1993 - Table 3. Data not collected as part of traffic counts.

			Vehicle Distribution Fractions				Number of Hours: (hrs)		
			HD Tks	MD Tks	Autos		7am-7pm	7pm-10pm	10pm-7am
			20.7	2.3	77.0	Fraction	12	3	9
						REMEL (dBA)	Backgd Traffic: (%)		
							7am-7pm	7pm-10pm	10pm-7am
							80	5	15

SEGMENT	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	65 Contour XX CNEL (ft)	60 Contour YY CNEL (ft)	55 Contour ZZ CNEL (ft)
Imperial Highway, I-8 EB Ramp to SR-98 Yuba Cutoff (2012)	250	25.0	16.7	4.2	4.2	59.48	57.71	51.69	51.69	59.6	*21.4*	*46.1*	*99.4*

Source/Assumptions: Traffic Report (LLG, 2011) - Existing Conditions Construction Year (2012) for ADT. Assumes a 5% growth factor from existing conditions (Dec. 2010). Vehicle distribution assumed to be the same as SR-98 w/o Ocotillo from Imperial County Noise Element, 1993 - Table 3. Data not collected as part of traffic counts.

			Vehicle Distribution Fractions				Number of Hours: (hrs)		
			HD Tks	MD Tks	Autos		7am-7pm	7pm-10pm	10pm-7am
			20.7	2.3	77.0	Fraction	12	3	9
						REMEL (dBA)	Backgd Traffic: (%)		
							7am-7pm	7pm-10pm	10pm-7am
							70	12	18

SEGMENT	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	65 Contour XX CNEL (ft)	60 Contour YY CNEL (ft)	55 Contour ZZ CNEL (ft)
SR-98 (Yuha Cutoff), West of Imperial Highway (2012)	1200	120.0	70.0	48.0	24.0	66.29	63.95	62.31	59.30	67.1	*67.7*	*145.8*	*314.2*

Source/Assumptions: Traffic Report (LLG, 2011) - Existing Conditions Construction Year (2012) for ADT. Assumes a 5% growth factor from existing conditions (Dec. 2010). Vehicle distribution from Imperial County Noise Element, 1993 - Table 3 (SR-98 w/o 8).

Vehicle Distribution Fractions			Backgd Traffic: (%)		
HD Tks	MD Tks	Autos	7am-7pm	7pm-10pm	10pm-7am
26.8	1.6	71.6	94.5	1.4	4.1

SEGMENT	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	*65 Contour XX CNEL (ft)*	*60 Contour YY CNEL (ft)*	*55 Contour ZZ CNEL (ft)*
W. Evans Hewes Highway, East of Imperial Highway (2012)	798	79.8	62.8	3.7	3.6	65.29	64.25	51.98	51.87	62.9	*35.9*	*77.3*	*166.6*

Source/Assumptions: Existing traffic (see above) plus construction traffic per the Traffic Report (LLG, 2011). Existing=11.2% HvyDuty (29), 4.8% MdDuty (13), 84% autos (218). Construction = 185 trucks (HvyDuty) and 353 employees (autos). Combination = 214 Hvy Duty (26.8%), 13 MdDuty (1.6%), 571 autos (71.6%) = 798. Construction would typically occur during daylight hours, so increase existing background traffic % in 7am-7pm timeframe for all construction traffic.

Vehicle Distribution Fractions			Backgd Traffic: (%)		
HD Tks	MD Tks	Autos	7am-7pm	7pm-10pm	10pm-7am
25.9	1.9	72.2	84.7	4.2	11.1

SEGMENT	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	*65 Contour XX CNEL (ft)*	*60 Contour YY CNEL (ft)*	*55 Contour ZZ CNEL (ft)*
Imperial Highway, I-8 EB Ramp to SR-98 Yuba Cutoff (2012)	320	32.0	22.6	4.5	3.9	61.32	59.71	52.68	52.13	60.6	*25.1*	*54.1*	*116.6*

Source/Assumptions: Existing traffic (see above) plus construction traffic per the Traffic Report (LLG, 2011). Existing=20.7% HvyDuty (52), 2.3% MdDuty (6), 77% autos (192). Construction = 31 trucks (HvyDuty) and 39 employees (autos). Combination = 83 Hvy Duty (25.9%), 6 MdDuty (1.9%), 231 autos (72.2%) = 320. Construction would typically occur during daylight hours, so increase existing background traffic % in 7am-7pm timeframe for all construction traffic.

Vehicle Distribution Fractions			Backgd Traffic: (%)		
HD Tks	MD Tks	Autos	7am-7pm	7pm-10pm	10pm-7am
22.0	2.2	75.8	71.7	11.3	17.0

SEGMENT	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	*65 Contour XX CNEL (ft)*	*60 Contour YY CNEL (ft)*	*55 Contour ZZ CNEL (ft)*
SR-98 (Yuha Cutoff), West of Imperial Highway (2012)	1270	127.0	75.9	47.8	24.0	66.71	64.48	62.47	59.48	67.3	*70.5*	*151.9*	*327.2*

Source/Assumptions: Existing traffic (see above) plus construction traffic per the Traffic Report (LLG, 2011). Existing=20.7% HvyDuty (248), 2.3% MdDuty (28), 77% autos (924). Construction = 31 trucks (HvyDuty) and 39 employees (autos). Combination = 279 Hvy Duty (22.0%), 28 MdDuty (2.2%), 963 autos (75.8%) = 1,270. Construction would typically occur during daylight hours, so increase existing background traffic % in 7am-7pm timeframe for all construction traffic.

California Vehicle Noise Calculation: Operations Traffic Mix (Trucks+Autos)

Project Number: 3116
Project Name: Ocotillo Express Wind Project
Model Description: Reference Energy Mean Emission Levels (REMEL) for California Vehicle Noise, Caltrans Technical Noise Supplement (11/09): Figure 5-9
Model Assumptions: no shielding, no barrier, no traffic flow adjustment (result : highest noise); uniform vehicle class mix

Existing + Wind Farm Operations

			Vehicle Distribution Fractions				Number of Hours: (hrs)		
			HD Tks	MD Tks	Autos		7am-7pm	7pm-10pm	10pm-7am
Distance: >15m Ref:	15.0	(m)	9.2	4.2	86.6	Fraction	12	3	9
Drop-off (alpha 0.5=soft, 0=hard):	0.00	(alpha)	83.8	80.1	72.7	REMEL (dBA)	**Backgd Traffic: (%)**		
Speed:	55	(mph)					7am-7pm	7pm-10pm	10pm-7am
	89	(kph)					86	3	11

SEGMENT/CONDITION	Autos Count (vpd)	Peak (vph)	Av Day Hr (vph)	Av Eve Hr (vph)	Av Nite Hr (vph)	Leq(h) Peak (dBA)	Leq(h) Av Day Hr (dBA)	Leq(h) Av Eve Hr (dBA)	Leq(h) Av Nite Hr (dBA)	CNEL (dBA)	*65 Contour XX CNEL (ft)*	*60 Contour YY CNEL (ft)*	*55 Contour ZZ CNEL (ft)*
W. Evans Hewes Highway, East of Imperial Highway (2012)	314	31.4	22.5	3.1	3.8	58.53	57.08	48.53	49.40	57.9	*16.4*	*35.4*	*76.2*

Assumptions: Estimated based on employees (17), plus additional temporary workers (10). 27 r/t or 54 one-way trips for operations (7am-7pm assumed) + 260 existing.

Predicted Noise Levels, 105 Wind Turbine Locations

			Model		ISO 9613		ISO 9613		ISO 9613		ISO 9613		Nord 2000	
			Temp [C/F]		10 C / 50 F		20 C / 68 F		30 C / 86 F		40 C / 104 F		10 C / 50 F	
			Humidity [%]		50%		40%		10%		5%		50%	
Name	X m	Y m	Z m	TH m	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq
Location L-1	593509.8	3624509.6	123.8	119.8	44.4	38.0	43.6	37.2	41.8	35.3	40.4	34.0	46.0	39.6
Location L-2	592008.4	3623765.5	156.1	152.1	46.3	39.9	45.4	39.0	43.4	37.0	41.9	35.5	48.8	42.3
Location L-3	592886.2	3622306.7	163.6	159.6	39.6	33.2	38.3	31.9	36.1	29.6	34.2	27.8	41.6	35.2
Location L-4	596062.7	3620974.4	120.2	116.2	<32	<26	<32	<26	<32	<26	<32	<26	<32	<26

X, Y UTM Coordinates [m]
Z Recevier Height above sealevel [m]
TH Terrain Height [m]
Ldn Day Night Level (10 dB correction for night time 10 pm - 7 am)
Leq Average Sound Level dBA

Nord 2000 - Always 8 m/s downwind

Note:

The prediction for Location 4 does not find any wind turbines. The search radius is 4,000 m (2.5 miles).
The contribution from all turbine beyond 4,000 m are Leq < 26 dBA -> Ldn < 32 dB.

Difference to ISO 9613 10C 50%

ISO 9613		ISO 9613		ISO 9613		ISO 9613		Nord 2000	
10 C / 50 F		20 C / 68 F		30 C / 86 F		40 C / 104 F		10 C / 50 F	
50%		40%		10%		5%		5%	
Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq	Ldn	Leq
0.0	0.0	0.8	0.8	2.6	2.7	4.0	4.0	-1.6	-1.6
0.0	0.0	0.9	0.9	2.9	2.9	4.4	4.4	-2.5	-2.4
0.0	0.0	1.3	1.3	3.5	3.6	5.4	5.4	-2.0	-2.0
-	-	-	-	-	-	-	-	-	-

Appendix G

Air Quality

Appendix G

Air Quality

Ocotillo Wind Energy Facility (OWEF)

Alternative 1 (Proposed Action) General Assumptions

1) Work occurs 5 days a week, up to 10 hours a day, excepting major holidays (average 21 days/month).
2) Work begins in September 2011 and concludes in September 2013.

Alternatives General Assumptions

1) Alternative 2 assumes 137 wind turbine generators (WTGs).
   A) Construction of Alternative 2 is assumed to be the same as Phase 1 construction of the Proposed Action.
   B) Construction of O&M Complex and Substation remains the same.
2) Alternative 3 assumes 105 WTGs.
   A) Construction of Alternative 3 is assumed to be a part of Phase 1 construction. Construction activities occurring in 2011 are unchanged.
   B) Staff modified the original schedule of the Proposed Action based on the number of WTGs to accommodate the reduced size of the project; however construction activities occuring in 2011 are unchanged.
   C) Construction of O&M Complex and Substation remains the same.

Offroad Equipment Emission Calculation Assumptions

1) Emission factors are the latest available from the SCAQMD website, linearly interpolated to the actual engine horsepower.
2) Emission factors from each year assumed in the project schedule are used to calculate the annual emissions.
3) Equipment type, number, and usage estimates are used as estimated using equipment data and quantity estimates provided by the applicant.
4) The following vehicle types, which could be offroad vehicles are assumed to be onroad vehicles considering the project description, needs and location: water trucks, and belly and end dump trucks.

Onroad Equipment Emission Calculations Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the vehicles have been assigned three classes, passenger (i.e. employee vehicles and pickups), delivery (all nonpassenger vehicles smaller than heavy-heavy duty), and heavy-heavy duty vehicles
2) Emission factors from each year assumed in the project schedule are used to calculate the annual emissions.
3) Trip estimates are based on import/export trips, equipment delivery, and worker trips provided by the applicant.
4) All onroad traffic for the project is assumed to occur within Imperial County.

Fugitive Dust Emission Calculations Assumptions

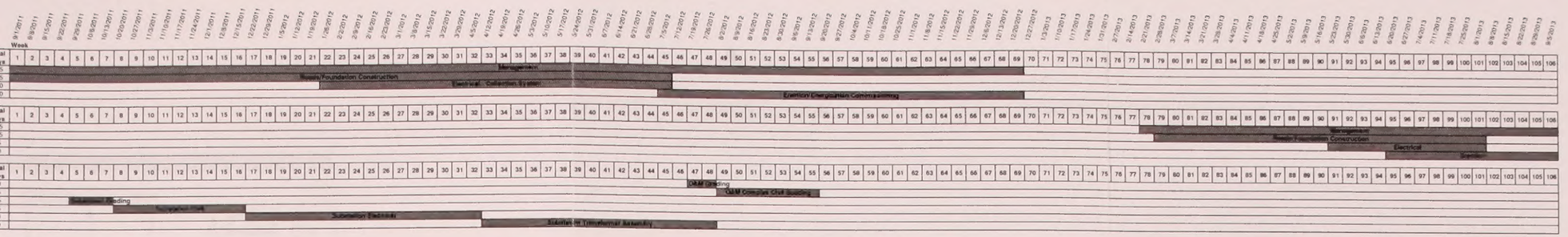
1) Unpaved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.2 and use the following assumptions:
   A) Silt content is assumed to be 12% on average (SCAQMD Handbook for Mountain Roads); and
   B) average vehicle weight based on VMT estimate for unpaved roads
2) Paved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions:
   A) Silt loading is 0.06 g/m2 for 5,000<ADT<10,000 of Table 13.2.1-2; B) average vehicle weight is calculated on VMT average basis.
3) Earthmoving emission factors are calculated using the recent version of USEPA AP-42 Section 11.9 for Dozing and Grading, and Section 13.2.4 for soil handling (drop emissions).

Construction Schedule

Phase I (137 WTG)	# of employees	Start Week	End Week	2011	2012	2013	Total Days
Management	27	1	69	87	258	0	345
Roads/Foundation Construction	64	1	45	87	138	0	225
Electrical	38	22	45	0	120	0	120
Erection	64	44	69	0	130	0	130

Phase II (21 WTG)	# of employees	Start Week	End Week	2011	2012	2013	Total Days
Management	10	78	106	0	0	145	145
Roads/Foundation Construction	23	79	101	0	0	115	115
Electrical	13	91	101	0	0	55	55
Erection	23	95	106	0	0	60	60

O&M Complex and Substation	# of employees	Start Week	End Week	2011	2012	2013	Total Days
O&M Complex Grading	4	47	48	0	10	0	10
O&M Complex Civil Building	12	49	55	0	35	0	35
Substation Grading	8	5	7	15	0	0	15
Substation Civil	12	8	16	45	0	0	45
Substation Electrical	9	17	32	7	73	0	80
Substation Transformer Assembly	8	33	48	0	80	0	80



Daily Traffic Volume

Round Trip Assumptions

Phase I (137 WTG)

	Vehicle Class	Route	Direction
Management			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Roads/Foundation Construction			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Road Maintenance and Dust Control	HHDT	I-8	From Pine Valley (WNW)
Water for Concrete Foundation	HHDT	I-8	From Pine Valley (WNW)
Gravel for Roads	HHDT	Local Roads	From Ocotillo
Concrete Foundation Aggregate	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Concrete Foundation Cement	HHDT	I-8	From Victorville (NNW)
Electrical			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Road Maintenance and Dust Control	HHDT	I-8	From Pine Valley (WNW)
Erection			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
WTG Delivery	HHDT	I-8	From Texas (E)



	Sum
Employees	7,935
Employees	11,660
Water for Road Maintenance and Dust Control	1,540
Water for Concrete Foundation	440
Gravel for Roads	2,860
Concrete Foundation Aggregate	2,200
Concrete Foundation Sand	
Concrete Foundation Cement	660
Employees	3,800
Water for Road Maintenance and Dust Control	1,440
Employees	6,625
WTG Delivery	1,260

Phase II (21 WTG)

	Vehicle Class	Route	Direction
Management			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Roads/Foundation Construction			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Road Maintenance and Dust Control	HHDT	I-8	From Pine Valley (WNW)
Water for Concrete Foundation	HHDT	I-8	From Pine Valley (WNW)
Gravel for Roads	HHDT	Local Roads	From Ocotillo
Concrete Foundation Aggregate	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Concrete Foundation Cement	HHDT	I-8	From Victorville (NNW)
Electrical			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Road Maintenance and Dust Control	HHDT	I-8	From Pine Valley (WNW)
Erection			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
WTG Delivery	HHDT	I-8	From Texas (E)

	Sum
Employees	1,160
Employees	2,185
Water for Road Maintenance and Dust Control	345
Water for Concrete Foundation	115
Gravel for Roads	460
Concrete Foundation Aggregate	345
Concrete Foundation Sand	230
Concrete Foundation Cement	115
Employees	605
Water for Road Maintenance and Dust Control	220
Employees	1,045
WTG Delivery	270

O&M Complex and Substation Construction

	Vehicle Class	Route	Direction
O&M Complex			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Concrete Foundations	HHDT	I-8	From Pine Valley (WNW)
Aggregate for Concrete Foundations	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Cement for Concrete Foundations	HHDT	I-8	From Victorville (NNW)
Substation			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Concrete Foundations	HHDT	I-8	From Pine Valley (WNW)
Aggregate for Concrete Foundations	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Cement for Concrete Foundations	HHDT	I-8	From Victorville (NNW)

	Sum
Employees	380
Water for Concrete Foundations	5
Aggregate for Concrete Foundations	15
Concrete Foundation Sand	10
Cement for Concrete Foundations	5
Employees	1,755
Water for Concrete Foundations	5
Aggregate for Concrete Foundations	30
Concrete Foundation Sand	15
Cement for Concrete Foundations	10

Miscellaneous

	Vehicle Class	Route	Direction
Miscellaneous Deliveries/Crew Trucks	Delivery	I-8	From San Diego (W)
Fuel Deliveries	HHDT	I-8	From El Centro (E)

	Sum
Miscellaneous Deliveries/Crew Trucks	1,989
Fuel Deliveries	418

Internal Project Trips

	Vehicle Class	Route	Direction
Pickups	Passenger	Onsite and Local Roads	From Staging/Parking Area to WTGs
Concrete Delivery	HHDT	Onsite and Local Roads	From Batch Plant to WTGs
Staging Area Material/Crew Trucks to WTG Sites	Delivery	Onsite and Local Roads	From Staging/Parking Area to WTGs
Offroad Equipment Movement	HHDT	Onsite and Local Roads	Internal Site Roads

	Sum
Pickups	11,110
Concrete Delivery	6,560
Staging Area Material/Crew Trucks to WTG Sites	14,750
Offroad Equipment Movement	980

Total Number of Daily Offsite Vehicle Trips (round trips)

Offsite Trip Totals

Vehicle Class	Sum
Passenger	37,150
Delivery	1,989
HHDT	13,013

Alternative 1 - Proposed Action
No. of wind turbine generator: 158

Ocotillo Wind Energy Facility - Annual Construction Emissions

2011 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.45	2.58	4.04	0.01	0.20	0.17	636	1,429
Offroad Vehicles/Equipment	1.00	3.47	8.21	0.01	0.40	0.37	822	822
Fugitive Dust	---	---	---	---	14.14	2.52	---	---
Totals	**1.45**	**6.05**	**12.25**	**0.02**	**14.74**	**3.06**	**1,458**	**2,250**

2012 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	1.35	8.18	11.27	0.02	0.55	0.47	1,892	11,057
Offroad Vehicles/Equipment	2.28	8.08	19.15	0.02	0.93	0.85	1,842	1,842
Fugitive Dust	---	---	---	---	29.41	4.81	---	---
Totals	**3.63**	**16.25**	**30.43**	**0.04**	**30.89**	**6.13**	**3,734**	**12,899**

2013 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.35	2.13	2.90	0.00	0.14	0.12	470	2,172
Offroad Vehicles/Equipment	0.47	1.68	4.06	0.00	0.19	0.18	386	386
Fugitive Dust	---	---	---	---	6.21	0.97	---	---
Totals	**0.82**	**3.80**	**6.96**	**0.01**	**6.54**	**1.26**	**856**	**2,557**

Project Total Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	2.14	12.88	18.21	0.03	0.89	0.75	2,999	14,657
Offroad Vehicles/Equipment	3.75	13.23	31.43	0.03	1.52	1.40	3,050	3,050
Fugitive Dust	---	---	---	---	49.76	8.29	---	---
Totals	**5.89**	**26.11**	**49.64**	**0.06**	**52.17**	**10.45**	**6,048**	**17,706**

Amortized Construction Emissions Over 30 Years

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.07	0.43	0.61	0.00	0.03	0.03	100	489
Offroad Vehicles/Equipment	0.13	0.44	1.05	0.00	0.05	0.05	102	102
Fugitive Dust	---	---	---	---	1.66	0.28	---	---
Totals	**0.20**	**0.87**	**1.65**	**0.00**	**1.74**	**0.35**	**202**	**590**

Ocotillo Wind Energy Facility - Daily Construction Emissions

Maximum Daily Emissions

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	21.60	119.16	201.54	0.30	9.98	8.54	31,276
Offroad Vehicles/Equipment	30.53	108.60	259.54	0.27	12.48	11.48	24,764
Fugitive Dust	---	---	---	---	343.40	55.20	---
Totals	**52.13**	**227.75**	**461.08**	**0.57**	**365.85**	**75.22**	**56,040**

Alternative 2
No. of wind turbine generator: 137

Ocotillo Wind Energy Facility - Annual Construction Emissions

2011 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.45	2.58	4.04	0.01	0.20	0.17	636	1,429
Offroad Vehicles/Equipment	1.00	3.47	8.21	0.01	0.40	0.37	822	822
Fugitive Dust	---	---	---	---	14.14	2.52	---	---
Totals	**1.45**	**6.05**	**12.25**	**0.02**	**14.74**	**3.06**	**1,458**	**2,250**

2012 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	1.35	8.18	11.27	0.02	0.55	0.47	1,892	11,057
Offroad Vehicles/Equipment	2.28	8.08	19.15	0.02	0.93	0.85	1,842	1,842
Fugitive Dust	---	---	---	---	29.41	4.81	---	---
Totals	**3.63**	**16.25**	**30.43**	**0.04**	**30.89**	**6.13**	**3,734**	**12,899**

Project Total Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	1.80	10.76	15.32	0.02	0.75	0.64	2,528	12,485
Offroad Vehicles/Equipment	3.28	11.55	27.36	0.03	1.33	1.22	2,664	2,664
Fugitive Dust	---	---	---	---	43.56	7.32	---	---
Totals	**5.08**	**22.30**	**42.68**	**0.05**	**45.63**	**9.18**	**5,192**	**15,149**

Amortized Construction Emissions Over 30 Years

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.06	0.36	0.51	0.00	0.03	0.02	84	416
Offroad Vehicles/Equipment	0.11	0.38	0.91	0.00	0.04	0.04	89	89
Fugitive Dust	---	---	---	---	1.45	0.24	---	---
Totals	**0.17**	**0.74**	**1.42**	**0.00**	**1.52**	**0.31**	**173**	**505**

Ocotillo Wind Energy Facility - Daily Construction Emissions

Maximum Daily Emissions

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	21.60	119.16	201.54	0.30	9.98	8.54	31,276
Offroad Vehicles/Equipment	30.53	108.60	259.54	0.27	12.48	11.48	24,764
Fugitive Dust	---	---	---	---	343.40	55.20	---
Totals	**52.13**	**227.75**	**461.08**	**0.57**	**365.85**	**75.22**	**56,040**

Alternative 3
No. of wind turbine generator: 105

Ocotillo Wind Express - Annual Construction Emissions

2011 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.45	2.58	4.04	0.01	0.20	0.17	636	1,429
Offroad Vehicles/Equipment	1.00	3.47	8.21	0.01	0.40	0.37	822	822
Fugitive Dust	---	---	---	---	13.48	2.38	---	---
Totals	**1.45**	**6.05**	**12.25**	**0.02**	**14.08**	**2.92**	**1,458**	**2,250**

2012 Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.96	5.91	7.98	0.01	0.39	0.33	1,342	8,273
Offroad Vehicles/Equipment	1.64	5.78	13.61	0.01	0.66	0.61	1,316	1,316
Fugitive Dust	---	---	---	---	22.57	3.71	---	---
Totals	**2.60**	**11.68**	**21.58**	**0.03**	**23.62**	**4.65**	**2,658**	**9,589**

Project Total Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	1.41	8.49	12.02	0.02	0.59	0.50	1,978	9,702
Offroad Vehicles/Equipment	2.63	9.25	21.81	0.02	1.06	0.98	2,138	2,138
Fugitive Dust	---	---	---	---	36.06	6.09	---	---
Totals	**4.04**	**17.73**	**33.84**	**0.04**	**37.70**	**7.57**	**4,116**	**11,840**

Amortized Construction Emissions Over 30 Years

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)	CO2 (global)
Onroad Vehicles	0.05	0.28	0.40	0.00	0.02	0.02	66	323
Offroad Vehicles/Equipment	0.09	0.31	0.73	0.00	0.04	0.03	71	71
Fugitive Dust	---	---	---	---	1.20	0.20	---	---
Totals	**0.13**	**0.59**	**1.13**	**0.00**	**1.26**	**0.25**	**137**	**395**

Ocotillo Wind Energy Facility - Daily Construction Emissions

Maximum Daily Emissions

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	21.60	119.16	201.54	0.30	9.98	8.54	31,276
Offroad Vehicles/Equipment	30.53	108.60	259.54	0.27	12.48	11.48	24,764
Fugitive Dust	---	---	---	---	343.40	55.20	---
Totals	**52.13**	**227.75**	**461.08**	**0.57**	**365.85**	**75.22**	**56,040**

Week 8-16

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	12.93	68.55	126.02	0.18	6.21	5.33	18,827
Offroad Vehicles/Equipment	23.79	83.32	189.90	0.22	9.56	8.79	19,524
Fugitive Dust	---	---	---	---	261.64	42.44	---
Totals	**36.72**	**151.88**	**315.92**	**0.40**	**277.40**	**56.56**	**38,351**

Week 22-32

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	11.42	68.41	95.74	0.16	4.80	4.08	16,309
Offroad Vehicles/Equipment	27.03	96.97	219.10	0.23	11.24	10.34	20,370
Fugitive Dust	---	---	---	---	262.19	44.62	---
Totals	**38.45**	**165.39**	**314.84**	**0.38**	**278.23**	**59.04**	**36,679**

Week 45

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	21.60	119.16	201.54	0.30	9.98	8.54	31,276
Offroad Vehicles/Equipment	30.53	108.60	259.54	0.27	12.48	11.48	24,764
Fugitive Dust	---	---	---	---	343.40	55.20	---
Totals	**52.13**	**227.75**	**461.08**	**0.57**	**365.85**	**75.22**	**56,040**

Week 49-55

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	13.17	69.52	129.03	0.18	6.35	5.45	19,195
Offroad Vehicles/Equipment	10.96	37.64	92.98	0.10	4.10	3.77	9,614
Fugitive Dust	---	---	---	---	182.15	29.18	---
Totals	**24.13**	**107.17**	**222.00**	**0.28**	**192.60**	**38.40**	**28,808**

Week 95-101

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2 (Imperial County)
Onroad Vehicles	12.69	61.76	134.70	0.18	6.57	5.67	18,712
Offroad Vehicles/Equipment	9.99	35.49	86.05	0.09	4.09	3.76	8,214
Fugitive Dust	---	---	---	---	167.84	23.72	---
Totals	**22.68**	**97.25**	**220.75**	**0.27**	**178.51**	**33.15**	**26,925**

Construction Equipment Usage

Phase I

	Equipment	Model	Quantity	Total Operating Days	Uses (hr/day)	HP
Road Construction	Road Grader	CAT 14H	2	225	10	220
	Sheepsfoot Roller	CAT 815F	2	225	10	240
	Medium Dozer	CAT D8T	1	225	10	310
Foundation Construction	Medium Dozer	CAT D6N	2	225	10	150
	Excavator	CAT 345	1	225	10	380
	Compaction Roller	CAT CP56	2	225	10	156
	Water Truck (3,000 gal)	CAT 725	1	225	10	309
	Engine for Batch Plant	n/a	1	225	8	140
Electrical	Trenching Rigs	Ditch Witch 1515HT	2	120	10	160
	Water Truck (3,000 gal)	CAT 725	1	120	10	309
Erection	Large Crane	Manitowoc 16000	2	130	10	500
	Medium Crane	Manitowoc 555	2	130	10	340

Phase II

	Equipment	Model	Quantity	Total Operating Days	Uses (hr/day)	HP
Road Construction	Road Grader	CAT 14H	2	115	3.5	220
	Sheepsfoot Roller	CAT 815F	2	115	3.5	240
	Medium Dozer	CAT D8T	1	115	3.5	310
Foundation Construction	Medium Dozer	CAT D6N	2	115	3.5	150
	Excavator	CAT 345	1	115	3.5	380
	Compaction Roller	CAT CP56	2	115	3.5	156
	Water Truck (3,000 gal)	CAT 725	1	115	3.5	309
	Engine for Batch Plant	n/a	1	115	3	140
Electrical	Trenching Rigs	Ditch Witch 1515HT	2	55	3.5	160
	Water Truck (3,000 gal)	CAT 725	1	55	3.5	309
Erection	Large Crane	Manitowoc 16000	2	60	3.5	500
	Medium Crane	Manitowoc 555	2	60	3.5	340

O&M and Substation Foundation

	Equipment	Model	Quantity	Total Operating Days	Uses (hr/day)	HP
O&M Complex						
Grading	980 Loader	(TRTP SCE data)	3	10	8	315
	Compaction Roller	(TRTP SCE data)	2	10	5	80
	Grader	(TRTP SCE data)	2	10	8	285
Civil/Building	14 ton Crane	(TRTP SCE data)	2	35	6	180
	150 ton Crane	(TRTP SCE data)	2	35	6	350
	Forklift	(TRTP SCE data)	1	35	6	75
	Manlifts	(TRTP SCE data)	4	35	6	75
Substation						
Grading	980 Loader	(TRTP SCE data)	3	15	8	315
	Compaction Roller	(TRTP SCE data)	2	15	5	80
	Grader	(TRTP SCE data)	2	15	8	285
Civil	14 ton Crane	(TRTP SCE data)	1	25	4	180
	Driller	(TRTP SCE data)	2	25	8	305
	Ditch Digger	(TRTP SCE data)	2	25	6	75
	Forklift	(TRTP SCE data)	1	25	4	75
	Tractor	(TRTP SCE data)	2	25	6	85
Electrical Element	14 ton Crane	(TRTP SCE data)	2	40	6	180
	150 ton Crane	(TRTP SCE data)	2	40	6	350
	Forklift	(TRTP SCE data)	1	40	6	75
	Manlifts	(TRTP SCE data)	4	40	6	75
Transformer Assembly and Processing	50 ton Crane	(TRTP SCE data)	2	40	6	200
	Forklift	(TRTP SCE data)	1	40	6	75
	Manlifts	(TRTP SCE data)	1	40	6	75

Employee Vehicle Trips

Phase I

	# of employees	Assumption (RT/day)	# Days	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	Daily			Total		
							Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Management	27	23	345	114	39	0.75	897	17	880	309,465	5,951	303,514
Roads/Foundation	64	53	225	114	39	0.75	2,067	40	2,027	465,075	8,944	456,131
Electrical	38	32	120	114	39	0.75	1,248	24	1,224	149,760	2,880	146,880
Erection	64	53	130	114	39	0.75	2,067	40	2,027	268,710	5,168	263,543

Phase II

	# of employees	Assumption (RT/day)	# Days	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	Daily			Total		
							Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Management	10	8	145	114	39	0.75	312	6	306	45,240	870	44,370
Roads/Foundation	23	19	115	114	39	0.75	741	14	727	85,215	1,639	83,576
Electrical	13	11	55	114	39	0.75	429	8	421	23,595	454	23,141
Erection	23	19	60	114	39	0.75	741	14	727	44,460	855	43,605

O&M and Substation

	# of employees	Assumption (RT/day)	# Days	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	Daily			Total		
							Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
O&M Complex Grading	4	3	10	114	39	0.75	117	2	115	1,170	23	1,148
O&M Complex Civil Building	12	10	35	114	39	0.75	390	8	383	13,650	263	13,388
Substation Grading	8	7	15	114	39	0.75	273	5	268	4,095	79	4,016
Substation Civil	12	10	45	114	39	0.75	390	8	383	17,550	338	17,213
Substation Electrical	9	8	80	114	39	0.75	312	6	306	24,960	480	24,480
Substation Tranformer	8	7	80	114	39	0.75	273	5	268	21,840	420	21,420

Construction Material

Total

	Material	Quantity	Assumption	Unit for Assumption	Total Trips	Vehicle Class	Origin	Total VMT/RT	Total VMT/RT in Imperial County
Road/Foundation Electrical	Water for Road Maintenance and Dust Control (Gallon)	14,174,537	5,500	Gallon/Truck	2,578	HHDT	Pine Valley	90	24
	Water for Concrete Foundation (Gallon)	2,089,618	5,500	Gallon/Truck	380	HHDT	Pine Valley	90	24
	Gravel for Roads (Ton)	79,800	24	Ton/Truck	3,325	HHDT	Ocotillo	6	6
	Cut (cy)	29	20	Cy/Truck	2	HHDT	Ocotillo	6	6
	Concrete Foundation Aggregate (Ton)	59,293	24	Ton/Truck	2,471	HHDT	Thermal	220	185
	Concrete Foundation Sand (Ton)	32,754	24	Ton/Truck	1,365	HHDT	Ocotillo	6	6
	Concrete Foundation Cement (Ton)	15,785	24	Ton/Truck	658	Batch Plant	Victorville	460	24
Erection	Wind Turbine Generator	158	9	Truck/WTG	1,422	HHDT	Port of Galveston, TX	2,860	166
			2	WTG/day					
O&M Complex and Substation	Water for Concrete Foundations (Gallon)	28,416	5,500	Gallon/Truck	6	HHDT	Pine Valley	90	24
	Cut (cy)	0.39	20	Cy/Truck	1	HHDT	Ocotillo	6	6
	Aggregate for Concrete Foundations (Ton)	807	24	Ton/Truck	34	HHDT	Thermal	220	185
	Concrete Foundation Sand (Ton)	446	24	Ton/Truck	19	HHDT	Ocotillo	6	6
	Concrete Foundation Cement (Ton)	215	24	Ton/Truck	9	HHDT	Victorville	460	24

Phase I

															Daily			Total		
Phase	Material	Quantity	Assumption	Unit for Assumption	Total Trips	Vehicle Class	Origin	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	# Days	Start Week	End Week	# of Daily RT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Road/Foundation	Water for Road Maintenance and Dust Control (Gallon)	8,015,596	5,500	Gallon/Truck	1,458	HHDT	Pine Valley	90	24	2.5	225	1	45	7	168	18	151	37,800	3,938	33,863
Electrical		4,274,984	3,000		1,425						120	22	45	12	288	30	258	34,560	3,600	30,960
Road/Foundation	Water for Concrete Foundation (Gallon)	1,811,884	5,500	Gallon/Truck	330	HHDT	Pine Valley	90	24	2.5	225	1	45	2	48	5	43	10,800	1,125	9,675
Road/Foundation	Gravel for Roads (Ton)	69,194	24	Ton/Truck	2,884	HHDT	Ocotillo	6	6	2.5	225	1	45	13	78	33	46	17,550	7,313	10,238
Road/Foundation	Cut (cy)	25	20	Cy/Truck	2	HHDT	Ocotillo	6	6	2.5	1	1	1	2	12	5	7	12	5	7
Road/Foundation	Concrete Foundation Aggregate (Ton)	51,413	24	Ton/Truck	2,143	HHDT	Thermal	220	185	2.5	225	1	45	10	1,850	25	1,825	416,250	5,625	410,625
Road/Foundation	Concrete Foundation Sand (Ton)	28,401	24	Ton/Truck	1,184	HHDT	Ocotillo	6	6	2.5	225	1	45	6	36	15	21	8,100	3,375	4,725
Road/Foundation	Concrete Foundation Cement (Ton)	13,687	24	Ton/Truck	571	HHDT	Victorville	460	24	2.5	225	1	45	3	72	8	65	16,200	1,688	14,513
Erection	Wind Turbine Generator	137	9	Truck/WTG	1,233	HHDT	Port of Galveston, TX	2,860	166	2.5	69	44	58	18	2,988	45	2,943	204,678	3,083	201,596
			2	WTG/day																

Phase II

															Daily			Total		
Phase	Material	Quantity	Assumption	Unit for Assumption	Total Trips	Vehicle Class	Origin	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	# Days	Start Week	End Week	# of Daily RT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Road/Foundation	Water for Road Maintenance and Dust Control (Gallon)	1,274,442	5,500	Gallon/Truck	232	HHDT	Pine Valley	90	24	2.5	115	79	101	3	72	8	65	8,280	863	7,418
Electrical		609,516	3,000		204						55	91	101	4	96	10	86	5,280	550	4,730
Road/Foundation	Water for Concrete Foundation (Gallon)	277,734	5,500	Gallon/Truck	51	HHDT	Pine Valley	90	24	2.5	115	79	101	1	24	3	22	2,760	288	2,473
Road/Foundation	Gravel for Roads (Ton)	10,606	24	Ton/Truck	442	HHDT	Ocotillo	6	6	2.5	115	79	101	4	24	10	14	2,760	1,150	1,610
Road/Foundation	Cut (cy)	4	20	Cy/Truck	1	HHDT	Ocotillo	6	6	2.5	1	79	79	1	6	3	4	6	3	4
Road/Foundation	Concrete Foundation Aggregate (Ton)	7,881	24	Ton/Truck	329	HHDT	Thermal	220	185	2.5	115	79	101	3	555	8	548	63,825	863	62,963
Road/Foundation	Concrete Foundation Sand (Ton)	4,353	24	Ton/Truck	182	HHDT	Ocotillo	6	6	2.5	115	79	101	2	12	5	7	1,380	575	805
Road/Foundation	Concrete Foundation Cement (Ton)	2,098	24	Ton/Truck	88	HHDT	Victorville	460	24	2.5	115	79	101	1	24	3	22	2,760	288	2,473
Erection	Wind Turbine Generator	21	9	Truck/WTG	189	HHDT	Port of Galveston, TX	2,860	166	2.5	11	95	97	18	2,988	45	2,943	31,374	473	30,902
			2	WTG/day																

O&M Complex

															Daily			Total		
Phase	Material	Total Quantity	Assumption	Unit for Assumption	Total Trips	Vehicle Class	Origin	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	# Days	Start Week	End Week	# of Daily RT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
O&M Complex	Water for Concrete Foundations (Gallon)	9,472	5,500	Gallon/Truck	2	HHDT	Pine Valley	90	24	0.75	2	49	49	1	24	1	23	48	2	47
O&M Complex	Cut (cy)	1	20	Cy/Truck	1	HHDT	Ocotillo	6	6	0.75	1	49	49	1	6	1	5	6	1	5
O&M Complex	Aggregate for Concrete Foundations (Ton)	269	24	Ton/Truck	12	HHDT	Thermal	220	185	0.75	4	49	49	3	555	2	553	2,220	9	2,211
O&M Complex	Concrete Foundation Sand (Ton)	149	24	Ton/Truck	7	HHDT	Ocotillo	6	6	0.75	4	49	49	2	12	2	11	48	6	42
O&M Complex	Concrete Foundation Cement (Ton)	72	24	Ton/Truck	3	HHDT	Victorville	460	24	0.75	3	49	49	1	24	1	23	72	2	70

Substation

															Daily			Total		
Phase	Material	Total Quantity	Assumption	Unit for Assumption	Total Trips	Vehicle Class	Origin	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	# Days	Start Week	End Week	# of Daily RT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Substation	Water for Concrete Foundations (Gallon)	18,944	5,500	Gallon/Truck	4	HHDT	Pine Valley	90	24	2.3	5	8	8	1	24	2	22	120	12	109
Substation	Cut (cy)	1	20	Cy/Truck	1	HHDT	Ocotillo	6	6	2.3	1	8	8	1	6	2	4	6	2	4
Substation	Aggregate for Concrete Foundations (Ton)	538	24	Ton/Truck	23	HHDT	Thermal	220	185	2.3	4	8	8	6	1,110	14	1,096	4,440	55	4,385
Substation	Concrete Foundation Sand (Ton)	297	24	Ton/Truck	13	HHDT	Ocotillo	6	6	2.3	5	8	8	3	18	7	11	81	31	50
Substation	Concrete Foundation Cement (Ton)	143	24	Ton/Truck	6	HHDT	Victorville	460	24	2.3	3	8	8	2	48	5	43	144	14	130

Miscellaneous Trips

Miscellaneous

							Daily			Total		
	Vehicle Class	RT/day (max)	# Days	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Miscellaneous	Delivery	5	490	57	20	1	98	5	93	196,463	10,075	186,388
Fuel Deliveries	HHDT	1	490	57	20	1	20	1	19	8,141	418	7,724

Internal Project Trips

Miscellaneous

									Maximum Daily			Total VMT			Total VMT in 2011			Total VMT in 2012			Total VMT in 2013		
	Vehicle Class	Maximum RT/day	# Trips in 2011	# Trips in 2012	# Trips in 2013	Total VMT/RT	Total VMT/RT in Imperial County	Unpaved VMT/RT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Pickups	Passenger	28	2436	7224	1,450	2	2	1	56	28	28	22,220	11,110	11,110	4,872	2,436	2,436	14,448	7,224	7,224	2,900	1,450	1,450
Concrete Delivery	HHDT	26	2132	3623	805	2	2	1	52	26	26	13,120	6,560	6,560	4,264	2,132	2,132	7,246	3,623	3,623	1,610	805	805
Staging Area Material/Crew Trucks to WTG Sites	Delivery	46	2778	10042	1,930	2	2	1	92	46	46	29,500	14,750	14,750	5,556	2,778	2,778	20,084	10,042	10,042	3,860	1,930	1,930
Offroad Equipment Movement	HHDT	2	174	516	290	2	2	1	4	2	2	1,960	980	980	348	174	174	1,032	516	516	580	290	290

Miscellaneous

	Vehicle Class	Week 8-16 RT/day	Maximum Daily			Week 22-32 RT/day	Maximum Daily			Week 45 RT/day	Maximum Daily			Week 49-55 RT/day	Maximum Daily			Week 95-101 RT/day	Maximum Daily		
			Total VMT	Unpaved VMT	Paved VMT		Total VMT	Unpaved VMT	Paved VMT		Total VMT	Unpaved VMT	Paved VMT		Total VMT	Unpaved VMT	Paved VMT		Total VMT	Unpaved VMT	Paved VMT
Pickups	Passenger	28	56	28	28	28	56	28	28	28	56	28	28	28	56	28	28	10	20	10	10
Concrete Delivery	HHDT	26	52	26	26	26	52	26	26	26	52	26	26	0	0	0	0	7	14	7	7
Staging Area Material/Crew Trucks to WTG Sites	Delivery	34	68	34	34	46	92	46	46	68	136	68	68	34	68	34	34	22	44	22	22
Offroad Equipment Movement	HHDT	2	4	2	2	2	4	2	2	2	4	2	2	2	4	2	2	2	4	2	2

Internal Project Trips - Alternative 3

Miscellaneous - Alternative

	Vehicle Class	Week 34 RT/day	Maximum Daily			Week 43-44	Maximum Daily			Week 45-48	Maximum Daily		
			Total VMT	Unpaved VMT	Paved VMT		Total VMT	Unpaved	Paved VMT		Total VMT	Unpaved	Paved
Pickups	Passenger	21	42	21	21	21	42	21	21	21	42	21	21
Concrete Delivery	HHDT	27	54	27	27	0	0	0	0	0	0	0	0
Staging Area Material/Crew Trucks to WTG Sites	Delivery	58	116	58	58	32	64	32	32	32	64	32	32
Offroad Equipment Movement	HHDT	2	4	2	2	2	4	2	2	2	4	2	2

Vehicle Travel Summary

Phase I

	Activity	Vehicle Class	Maximum Daily Trip VMT			Total Trip VMT			Total Trip VMT in 2011			Total Trip VMT in 2012			Total Trip VMT in 2013			CHECK	CHECK	CHECK
			Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT			
Management	Employee Commute	Passenger	897	17	880	309,465	5,951	303,514	78,039	1,501	76,538	231,426	4,451	226,976	0	0	0	TRUE	TRUE	TRUE
Roads/Foundation Construction	Employee Commute	Passenger	2,067	40	2,027	465,075	8,944	456,131	179,829	3,458	176,371	285,246	5,486	279,761	0	0	0	TRUE	TRUE	TRUE
	Material Transfer	HHDT	2,096	90	2,006	468,912	19,130	449,782	181,313	7,397	173,916	287,599	11,733	275,866	0	0	0	TRUE	TRUE	TRUE
	Water Truck for Dust	HHDT	168	18	151	37,800	3,938	33,863	14616	1522.5	13093.5	23184	2415	20769	0	0	0	TRUE	TRUE	TRUE
Electrical	Employee Commute	Passenger	1,248	24	1,224	149,760	2,880	146,880	0	0	0	149,760	2,880	146,880	0	0	0	TRUE	TRUE	TRUE
	Water Truck for Dust	HHDT	288	30	258	34,560	3,600	30,960	0	0	0	34,560	3,600	30,960	0	0	0	TRUE	TRUE	TRUE
Erection	Employee Commute	Passenger	2,067	40	2,027	268,710	5,168	263,543	0	0	0	268,710	5,168	263,543	0	0	0	TRUE	TRUE	TRUE
	Material Transfer	HHDT	2,988	45	2,943	204,678	3,083	201,596	0	0	0	204,678	3,083	201,596	0	0	0	TRUE	TRUE	TRUE

Phase II

	Activity	Vehicle Class	Maximum Daily Trip VMT			Total Trip VMT			Total Trip VMT in 2011			Total Trip VMT in 2012			Total Trip VMT in 2013			CHECK	CHECK	CHECK
			Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT			
Management	Employee Commute	Passenger	312	6	306	45,240	870	44,370	0	0	0	0	0	0	45,240	870	44,370	TRUE	TRUE	TRUE
Roads/Foundation Construction	Employee Commute	Passenger	741	14	727	85,215	1,639	83,576	0	0	0	0	0	0	85,215	1,639	83,576	TRUE	TRUE	TRUE
	Material Transfer	HHDT	645	30	615	73,491	3,165	70,326	0	0	0	0	0	0	73,491	3,165	70,326	TRUE	TRUE	TRUE
	Water Truck for Dust	HHDT	72	8	65	8,280	863	7,418	0	0	0	0	0	0	8280	862.5	7417.5	TRUE	TRUE	TRUE
Electrical	Employee Commute	Passenger	429	8	421	23,595	454	23,141	0	0	0	0	0	0	23595	453.75	23141.25	TRUE	TRUE	TRUE
	Water Truck for Dust	HHDT	96	10	86	5,280	550	4,730	0	0	0	0	0	0	5280	550	4730	TRUE	TRUE	TRUE
Erection	Employee Commute	Passenger	741	14	727	44,460	855	43,605	0	0	0	0	0	0	44460	855	43605	TRUE	TRUE	TRUE
	Material Transfer	HHDT	2,988	45	2,943	31,374	473	30,902	0	0	0	0	0	0	31374	472.5	30901.5	TRUE	TRUE	TRUE

O&M and Substation

	Activity	Vehicle Class	Maximum Daily Trip VMT			Total Trip VMT			Total Trip VMT in 2011			Total Trip VMT in 2012			Total Trip VMT in 2013			CHECK	CHECK	CHECK
			Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT			
O&M Complex - Civil	Employee Commute	Passenger	390	8	383	14,820	285	14,535	0	0	0	14,820	285	14,535	0	0	0	TRUE	TRUE	TRUE
	Material Transfer	HHDT	621	6	615	2,394	20	2,375	0	0	0	2,394	20	2,375	0	0	0	TRUE	TRUE	TRUE
Substation - Civil	Employee Commute	Passenger	390	8	383	21,840	420	21,420	6,250	120	6,130	15,590	300	15,290	0	0	0	TRUE	TRUE	TRUE
	Material Transfer	HHDT	1,206	30	1,176	4,791	114	4,677	4,791	114	4,677	0	0	0	0	0	0	TRUE	TRUE	TRUE

Miscellaneous

	Activity	Vehicle Class	Daily Trip VMT			Total Trip VMT			Total Trip VMT in 2011			Total Trip VMT in 2012			Total Trip VMT in 2013			CHECK	CHECK	CHECK
			Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT			
Miscellaneous throughout entire construction period	Miscellaneous	Delivery	98	5	93	196,463	10,075	186,388	32,250	1,654	30,596	96,378	4,942	91,435	67,835	3,479	64,356	TRUE	TRUE	TRUE
	Fuel	HHDT	20	1	19	8,141	418	7,724	1,336	69	1,268	3,994	205	3,789	2,811	144	2,667	TRUE	TRUE	TRUE

Internal Project Trips

	Activity	Vehicle Class	Daily Trip VMT			Total Trip VMT			Total Trip VMT in 2011			Total Trip VMT in 2012			Total Trip VMT in 2013		
			Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT	Total VMT	Unpaved VMT	Paved VMT
Internal Project Trips	Pickups	Passenger	56	28	28	22,220	11,110	11,110	4,872	2,436	2,436	14,448	7,224	7,224	2,900	1,450	1,450
	Concrete Delivery	HHDT	52	26	26	13,120	6,560	6,560	4,264	2,132	2,132	7,246	3,623	3,623	1,610	805	805
	Staging Area Material/Crew	Delivery	92	46	46	29,500	14,750	14,750	5,556	2,778	2,778	20,084	10,042	10,042	3,860	1,930	1,930
	Offroad Equipment Movem	HHDT	4	2	2	1,960	980	980	348	174	174	1,032	516	516	580	290	290

Vehicle Travel Annual Summary for Fugitive Dust Calculation

Paved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
2011	261,475	33,374	195,260
2012	954,207	101,477	539,493
2013	196,143	66,286	117,137

Unpaved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
2011	7,515	4,432	11,408
2012	25,792	14,984	25,194
2013	5,268	5,409	6,289

Vehicle Travel Daily Summary for Fugitive Dust Calculation

Paved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
Week 8-16	3,318	139	3,379
Week 22-32	4,437	139	2,415
Week 45	6,426	139	5,404
Week 49-55	3,318	139	3,579
Week 95-101	2,208	139	3,755

Unpaved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
Week 8-16	93	51	166
Week 22-32	87	51	138
Week 45	126	51	212
Week 49-55	93	51	54
Week 95-101	71	51	122

Vehicle Travel Annual Summary for Fugitive Dust Calculation - Alternative 3

Paved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
2011	261,475	33,374	195,260
2012	669,035	101,122	365,471

Unpaved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
2011	7,515	4,432	11,408
2012	17,967	8,251	19,622

Vehicle Travel Daily Summary for Fugitive Dust Calculation - Alternative 3

Paved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
Week 8-16	3,318	139	3,379
Week 19-30	4,437	139	2,415
Week 34	4,399	139	3,248
Week 43-44	3,175	139	2,990
Week 45-48	3,557	139	3,605

Unpaved Road Travel

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles
Week 8-16	93	51	166
Week 19-30	87	51	138
Week 34	86	51	104
Week 43-44	62	51	74
Week 45-48	70	51	104

Land Disturbance

Alternative 1 - Proposed Action

Facility Component	Temporary (acres)	Permanent (Acres)
Turbine Foundation & Crane Pads	286	40
Batching Plan & Laydown/Parking Area	12	0
Rail Unloading Yard	10	0
Access Roads	108	86
Collector Lines	149	1
Meterological Towers	1	1
Substation/Switchyard & O&M Facility	6.5	25.2
O&M Facility	0	3.4
Gravel Sources	0	15
Total	**572.5**	**171.6**

	Temporary (acres)	Permanent (Acres)
Phase I	528	138
Phase II	38	5
O&M, Substation	6.50	28.60
Total	**572.5**	**171.5**

2011	206	81
2012	329	86
2013	38	5
Total	**572.5**	**171.6**

Land Disturbance - Alternative 2

Facility Component	Temporary (acres)	Permanent (Acres)
Turbine Foundation & Crane Pads	248	35
Batching Plan & Laydown/Parking Area	12	0
Rail Unloading Yard	10	0
Access Roads	108	86
Collector Lines	149	1
Meterological Towers	1	1
Substation/Switchyard & O&M Facility	6.5	25.2
O&M Facility	0	3.4

	Temporary (acres)	Permanent (Acres)
Phase I	528	138
Phase II	---	---
O&M, Substation	7	29
Total	**534.5**	**166.3**

2011	206	81
2012	329	86
2013	---	---

Gravel Sources	0	15
Total	**534.5**	**166.3**

Total	**534.5**	**166.3**

Land Disturbance - Alternative 3

Facility Component	Temporary (acres)	Permanent (Acres)
Turbine Foundation & Crane Pads	190	27
Batching Plan & Laydown/Parking Area	12	0
Rail Unloading Yard	10	0
Access Roads	108	86
Collector Lines	149	1
Meterological Towers	1	1
Substation/Switchyard & O&M Facility	6.5	25.2
O&M Facility	0	3.4
Gravel Sources	0	15
Total	**476.6**	**158.2**

	Temporary (acres)	Permanent (Acres)
Phase I	470	130
Phase II	---	---
O&M, Substation	7	29
Total	**476.6**	**158.2**

2011	184	78
2012	292	81
2013	---	---
Total	**476.6**	**158.2**

Assumptions for Fugitive Dust Emissions

Silt Content:	16%	SCAQMD Handbook for farm roads
Moisture Content:	15%	SCAQMD moist and soil definition
Soil Stabilizer Control:	90%	Soil Binder

Onroad Emission Calculations

Onroad Emissions: SCAQMD Emission Factors for 2011

Scenario Year: 2011 -- Model Years: 1967 to 2011

	Emission Factors lbs/mile - 2011						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000852	0.008263	0.000845	0.000011	0.000089	0.000057	1.1023515
Delivery	0.002419	0.016932	0.018934	0.000027	0.000701	0.000597	2.7518082
Heavy-Heavy Duty	0.002795	0.011125	0.034558	0.000040	0.001661	0.001445	4.2204568

Onroad Equipment Annual Emissions

Phase I

Management

		Emissions lbs/year - 2011								Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	78,039	66.52	644.82	65.91	0.84	6.93	4.41	86,026	231,426	197.25	1,912.22	195.46	2.49	20.55	13.08	255,113
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		66.52	644.82	65.91	0.84	6.93	4.41	86,026		197.25	1,912.22	195.46	2.49	20.55	13.08	255,113

Road/Foundation Construction

		Emissions lbs/year - 2011								Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	179,829	153.27	1,485.88	151.88	1.94	15.97	10.16	198,235	285,246	243.12	2,356.92	240.92	3.07	25.33	16.12	314,441
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	195,929	547.71	2,179.63	6,770.92	7.78	325.41	283.09	826,908	310,783	868.77	3,457.35	10,740.08	12.34	516.17	449.05	1,311,648
		700.98	3,665.52	6,922.80	9.72	341.38	293.26	1,025,143		1,111.90	5,814.27	10,981.00	15.42	541.50	465.17	1,626,089

Electrical

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
149,760	127.65	1,237.43	126.49	1.61	13.30	8.47	165,088
0	0.00	0.00	0.00	0.00	0.00	0.00	0
34,560	96.61	384.47	1,194.33	1.37	57.40	49.94	145,859
	224.26	1,621.90	1,320.82	2.99	70.70	58.40	310,947

Erection

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
268,710	229.03	2,220.29	226.95	2.90	23.86	15.19	296,213
0	0.00	0.00	0.00	0.00	0.00	0.00	0
204,678	572.16	2,276.97	7,073.28	8.13	339.94	295.74	863,835
	801.19	4,497.25	7,300.23	11.03	363.80	310.93	1,160,048

Phase II

Management

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2013						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
45,240	38.56	373.81	38.21	0.49	4.02	2.56	49,870
0	0.00	0.00	0.00	0.00	0.00	0.00	0
0	0.00	0.00	0.00	0.00	0.00	0.00	0
	38.56	373.81	38.21	0.49	4.02	2.56	49,870

Road/Foundation Construction

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2013						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
85,215	72.63	704.11	71.97	0.92	7.57	4.82	93,937
0	0.00	0.00	0.00	0.00	0.00	0.00	0
81,771	228.59	909.67	2,825.85	3.25	135.81	118.15	345,111
	301.22	1,613.78	2,897.82	4.17	143.38	122.97	439,048

Onroad Emission Calculations

Electrical

	Emissions lbs/year - 2013						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
23,595	20.11	194.96	19.93	0.25	2.10	1.33	26,010
0	0.00	0.00	0.00	0.00	0.00	0.00	0
5,280	14.76	58.74	182.47	0.21	8.77	7.63	22,284
	34.87	253.70	202.40	0.46	10.86	8.96	48,294

Erection

	Emissions lbs/year - 2013						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
44,460	37.89	367.36	37.55	0.48	3.95	2.51	49,011
0	0.00	0.00	0.00	0.00	0.00	0.00	0
31,374	87.70	349.02	1,084.23	1.25	52.11	45.33	132,413
	125.60	716.39	1,121.78	1.73	56.06	47.84	181,423

O&M Complex and Substation

O&M Complex

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
14,820	12.63	122.45	12.52	0.16	1.32	0.84	16,337
0	0.00	0.00	0.00	0.00	0.00	0.00	0
2,394	6.69	26.63	82.73	0.10	3.98	3.46	10,104
	19.32	149.09	95.25	0.25	5.29	4.30	26,441

Substation

	Emissions lbs/year - 2011								Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	6,250	5.33	51.64	5.28	0.07	0.55	0.35	6,890	15,590	13.29	128.81	13.17	0.17	1.38	0.88	17,185
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	4,791	13.39	53.30	165.57	0.19	7.96	6.92	20,220	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		18.72	104.94	170.85	0.26	8.51	7.28	27,110		13.29	128.81	13.17	0.17	1.38	0.88	17,185

Miscellaneous

Miscellaneous

	Emissions lbs/year - 2011								Emissions lbs/year - 2012								Emissions lbs/year - 2013							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery	32,250	78.00	546.06	610.60	0.88	22.61	19.25	88,744	96,378	233.11	1,631.91	1,824.79	2.63	67.56	57.52	265,213	67,835	164.07	1,148.61	1,284.37	1.85	47.55	40.49	186,669
Heavy-Heavy Duty	1,336	3.74	14.87	46.18	0.05	2.22	1.93	5,640	3,994	11.16	44.43	138.02	0.16	6.63	5.77	16,856	2,811	7.86	31.27	97.14	0.11	4.67	4.06	11,864
		81.74	560.93	656.78	0.93	24.83	21.18	94,385		244.27	1,676.34	1,962.80	2.79	74.19	63.29	282,069		171.93	1,179.89	1,381.51	1.96	52.22	44.55	198,533

Internal Project Trip Annual Emissions

	Emissions lbs/year - 2011								Emissions lbs/year - 2012								Emissions lbs/year - 2013							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	4,872	4.15	40.26	4.11	0.05	0.43	0.28	5,371	14,448	12.31	119.38	12.20	0.16	1.28	0.82	15,927	2,900	2.47	23.96	2.45	0.03	0.26	0.16	3,197
Delivery	5,556	13.44	94.08	105.20	0.15	3.89	3.32	15,289	20,084	48.58	340.07	380.26	0.55	14.08	11.99	55,267	3,860	9.34	65.36	73.08	0.11	2.71	2.30	10,622
Heavy-Heavy Duty	4,612	12.89	51.31	159.38	0.18	7.66	6.66	19,465	8,278	23.14	92.09	286.07	0.33	13.75	11.96	34,937	2,190	6.12	24.36	75.68	0.09	3.64	3.16	9,243
		30.48	185.64	268.69	0.39	11.99	10.26	40,124		84.03	551.54	678.54	1.03	29.11	24.76	106,131		17.93	113.68	151.22	0.22	6.60	5.63	23,062

Onroad Emission Calculations - for global GHG emissions estimates

Onroad Emissions: SCAQMD Emission Factors for 2011

Scenario Year: 2011 -- Model Years: 1967 to 2011

	Emission Factors lbs/mile - 2011						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000852	0.008263	0.000845	0.000011	0.000089	0.000057	1.1023515
Delivery	0.002419	0.016932	0.018934	0.000027	0.000701	0.000597	2.7518082
Heavy-Heavy Duty	0.002795	0.011125	0.034558	0.000040	0.001661	0.001445	4.2204568

Onroad Equipment Annual Emissions

Phase I

Management

		Emissions lbs/year - 2011							Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	228,114	194.43	1,884.85	192.67	2.46	20.25	12.89	251,462	676,476	576.58	5,589.56	571.35	7.29	60.07	38.24	745,714
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		194.43	1,884.85	192.67	2.46	20.25	12.89	251,462		576.58	5,589.56	571.35	7.29	60.07	38.24	745,714

Road/Foundation Construction

		Emissions lbs/year - 2011							Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	525,654	448.03	4,343.35	443.97	5.66	46.67	29.71	579,455	833,796	710.67	6,889.45	704.23	8.98	74.04	47.13	919,136
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	391,853	1,095.40	4,359.21	13,541.68	15.57	650.82	566.18	1,653,797	621,559	1,737.53	6,914.62	21,479.91	24.69	1,032.33	898.08	2,623,264
		1,543.43	8,702.57	13,985.65	21.23	697.49	595.89	2,233,253		2,448.20	13,804.07	22,184.13	33.67	1,106.37	945.21	3,542,401

Electrical

		Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	437,760	373.12	3,617.10	369.73	4.72	38.87	24.74	482,565
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	129,600	362.29	1,441.75	4,478.73	5.15	215.25	187.26	546,971
		735.41	5,058.86	4,848.46	9.86	254.12	212.00	1,029,537

Erection

		Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	785,460	669.47	6,490.07	663.40	8.46	69.74	44.40	865,853
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	3,526,380	9,857.76	39,229.66	121,864.97	140.07	5,856.87	5,095.22	14,882,934
		10,527.23	45,719.73	122,528.37	148.54	5,926.62	5,139.61	15,748,788

Phase II

Management

		Emissions lbs/year - 2013						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	132,240	112.71	1,092.67	111.69	1.42	11.74	7.47	145,775
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		112.71	1,092.67	111.69	1.42	11.74	7.47	145,775

Road/Foundation Construction

		Emissions lbs/year - 2013						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	249,090	212.31	2,058.17	210.38	2.68	22.12	14.08	274,585
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	174,346	487.37	1,939.53	6,025.07	6.93	289.57	251.91	735,820
		699.68	3,997.70	6,235.45	9.61	311.68	265.99	1,010,405

Onroad Emission Calculations - for global GHG emissions estimates

Electrical

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2013						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
68,970	58.79	569.88	58.25	0.74	6.12	3.90	76,029
0	0.00	0.00	0.00	0.00	0.00	0.00	0
19,800	55.35	220.27	684.25	0.79	32.89	28.61	83,565
	114.13	790.15	742.50	1.53	39.01	32.51	159,594

Erection

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2013						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
129,960	110.77	1,073.83	109.76	1.40	11.54	7.35	143,262
0	0.00	0.00	0.00	0.00	0.00	0.00	0
540,540	1,511.04	6,013.31	18,680.03	21.47	897.77	781.02	2,281,326
	1,621.81	7,087.13	18,789.80	22.87	909.31	788.36	2,424,587

O&M Complex and Substation

O&M Complex

Passenger
Delivery
Heavy-Heavy Duty

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
43,320	36.92	357.94	36.59	0.47	3.85	2.45	47,754
0	0.00	0.00	0.00	0.00	0.00	0.00	0
4,254	11.89	47.32	147.01	0.17	7.07	6.15	17,954
	48.81	405.27	183.60	0.64	10.91	8.60	65,708

Substation

	Emissions lbs/year - 2011								Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	18,270	15.57	150.96	15.43	0.20	1.62	1.03	20,140	45,570	38.84	376.53	38.49	0.49	4.05	2.58	50,234
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	8,577	23.98	95.42	296.40	0.34	14.25	12.39	36,199	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		39.55	246.38	311.84	0.54	15.87	13.43	56,339		38.84	376.53	38.49	0.49	4.05	2.58	50,234

Miscellaneous

Miscellaneous

	Emissions lbs/year - 2011								Emissions lbs/year - 2012								Emissions lbs/year - 2013							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery	94,268	228.00	1,596.18	1,784.83	2.57	66.08	56.26	259,407	281,720	681.39	4,770.20	5,333.99	7.68	197.48	168.14	775,239	198,287	479.59	3,357.49	3,754.31	5.41	138.99	118.34	545,649
Heavy-Heavy Duty	3,906	10.92	43.46	135.00	0.16	6.49	5.64	16,487	11,674	32.63	129.87	403.44	0.46	19.39	16.87	49,271	8,217	22.97	91.41	283.96	0.33	13.65	11.87	34,679
		238.92	1,639.64	1,919.83	2.73	72.57	61.90	275,894		714.03	4,900.07	5,737.43	8.15	216.87	185.00	824,510		502.56	3,448.90	4,038.27	5.74	152.64	130.21	580,328

Internal Project Trip Annual Emissions

	Emissions lbs/year - 2011								Emissions lbs/year - 2012								Emissions lbs/year - 2013							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	4,872	4.15	40.26	4.11	0.05	0.43	0.28	5,371	14,448	12.31	119.38	12.20	0.16	1.28	0.82	15,927	2,900	2.47	23.96	2.45	0.03	0.26	0.16	3,197
Delivery	5,556	13.44	94.08	105.20	0.15	3.89	3.32	15,289	20,084	48.58	340.07	380.26	0.55	14.08	11.99	55,267	3,860	9.34	65.36	73.08	0.11	2.71	2.30	10,622
Heavy-Heavy Duty	4,612	12.89	51.31	159.38	0.18	7.66	6.66	19,465	8,278	23.14	92.09	286.07	0.33	13.75	11.96	34,937	2,190	6.12	24.36	75.68	0.09	3.64	3.16	9,243
		30.48	185.64	268.69	0.39	11.99	10.26	40,124		84.03	551.54	678.54	1.03	29.11	24.76	106,131		17.93	113.68	151.22	0.22	6.60	5.63	23,062

Offroad Equipment Emission Calculations

SCAQMD Offroad Emission Factors		HP	Quantity	2011 SCAQMD Emission Factor lbs/hour						Uses (hr/day)	Total Operating Days
				ROG	CO	NOx	SOX	PM	CO2		
Phase I											
	Road Construction	Road Grader	220	2	0.1657	0.5779	1.5040	0.0017	0.0660	152.84	10	225
		Sheepsfoot Roller	240	2	0.1435	0.4560	1.4637	0.0017	0.0560	147.10	10	225
		Medium Dozer	310	1	0.2856	0.9556	2.4937	0.0022	0.1074	203.02	10	225
	Foundation Construction	Medium Dozer	150	2	0.1973	0.7375	1.4645	0.0012	0.0855	110.98	10	225
		Excavator	380	1	0.1640	0.4818	1.5706	0.0020	0.0556	197.71	10	225
		Compaction Roller	156	2	0.1304	0.5515	0.9862	0.0010	0.0625	91.16	10	225
		Engine for Batch Plant	140	1	0.1395	0.5030	0.8841	0.0009	0.0716	74.3618	8	225
	Erection	Large Crane	500	2	0.1726	0.6137	1.6493	0.0018	0.0627	180.10	10	130
		Medium Crane	340	2	0.1371	0.4306	1.3312	0.0014	0.0500	136.62	10	130
	Electrical	Trenching Rigs	160	2	0.1954	0.7679	1.4826	0.0014	0.0897	122.35	10	120
Phase II												
	Road Construction	Road Grader	220	2	0.1657	0.5779	1.5040	0.0017	0.0660	152.84	3.5	115
		Sheepsfoot Roller	240	2	0.1435	0.4560	1.4637	0.0017	0.0560	147.10	3.5	115
		Medium Dozer	310	1	0.2856	0.9556	2.4937	0.0022	0.1074	203.02	3.5	115
	Foundation Construction	Medium Dozer	150	2	0.1973	0.7375	1.4645	0.0012	0.0855	110.98	3.5	115
		Excavator	380	1	0.1640	0.4818	1.5706	0.0020	0.0556	197.71	3.5	115
		Compaction Roller	156	2	0.1304	0.5515	0.9862	0.0010	0.0625	91.16	3.5	115
		Engine for Batch Plant	140	1	0.1395	0.5030	0.8841	0.0009	0.0716	74.3618	3	115
	Erection	Large Crane	500	2	0.1726	0.6137	1.6493	0.0018	0.0627	180.10	3.5	60
		Medium Crane	340	2	0.1371	0.4306	1.3312	0.0014	0.0500	136.62	3.5	60
	Electrical	Trenching Rigs	160	2	0.1954	0.7679	1.4826	0.0014	0.0897	122.35	3.5	55
O&M and Substation Foundation												
	O&M Complex											
	Grading	980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	10
		Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	10
		Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	10
	Civil/Building	14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	35
		150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	35
		Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	35
		Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	35
	Substation											
	Grading	980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	15
		Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	15
		Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	15
	Civil	14 ton Crane	180	1	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	4	25
		Driller	305	2	0.1008	0.3906	1.1181	0.0023	0.0366	215.21	8	25
		Ditch Digger	75	2	0.1633	0.4453	0.5397	0.0005	0.0517	44.34	6	25
		Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	4	25
		Tractor	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.04	6	25
	Electrical Element	14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	40
		150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	40
		Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40
		Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40
	Transformer Assembly and Processing	50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	90.95	6	40
		Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40
		Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40

* SCAQMD emission factors are linearly interpolated for the specific hp size of the assumed equipment

Phase 1

2011

Road Construction	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOx	SOx	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOx	SOx	PM	CO2	Days	Total Emissions lbs ROG	CO	NOx	SOx	PM	CO2
Road Grader	220	2	0.1657	0.5779	1.5040	0.0017	0.0660	152.84	10	3.31	11.56	30.08	0.03	1.32	3,057	87	288.40	1005.50	2617.04	2.99	114.81	265,936
Sheepsfoot Roller	240	2	0.1435	0.4560	1.4637	0.0017	0.0560	147.10	10	2.87	9.12	29.27	0.03	1.12	2,942	87	249.70	793.50	2546.81	2.88	97.48	255,949
Medium Dozer	310	1	0.2856	0.9556	2.4937	0.0022	0.1074	203.02	10	2.86	9.56	24.94	0.02	1.07	2,030	87	248.49	831.36	2169.52	1.91	93.44	176,627
										9.04	30.23	84.29	0.09	3.51	8,029		786.59	2630.36	7333.37	7.78	305.73	698,512
Foundation Construction																						
Medium Dozer	150	2	0.1973	0.7375	1.4645	0.0012	0.0855	110.98	10	3.95	14.75	29.29	0.02	1.71	2,220	87	343.38	1283.27	2548.26	2.17	148.77	193,105
Excavator	380	1	0.1640	0.4818	1.5706	0.0020	0.0556	197.71	10	1.64	4.82	15.71	0.02	0.56	1,977	87	142.70	419.14	1366.42	1.78	48.33	172,008
Compaction Roller	156	2	0.1304	0.5515	0.9862	0.0010	0.0625	91.16	10	2.61	11.03	19.72	0.02	1.25	1,823	87	226.89	959.62	1715.91	1.80	108.82	158,626
Engine for Batch Plant	140	1	0.1395	0.5030	0.8841	0.0009	0.0716	74.36	8	1.12	4.02	7.07	0.01	0.57	595	87	97.10	350.10	615.35	0.60	49.80	51,756
										9.31	34.62	71.79	0.07	4.09	6,615		810.07	3,012.14	6,245.94	6.35	355.73	575,495
Erection																						
Large Crane	500	2	0.1726	0.6137	1.6493	0.0018	0.0627	180.10	10	3.45	12.27	32.99	0.04	1.25	3,602							
Medium Crane	340	2	0.1371	0.4306	1.3312	0.0014	0.0500	136.62	10	2.74	8.61	26.62	0.03	1.00	2,732							
										6.19	20.89	59.61	0.06	2.25	6,334							
Electrical																						
Trenching Rigs	160	2	0.1954	0.7679	1.4826	0.0014	0.0897	122.35	10	3.91	15.36	29.65	0.03	1.79	2,447							
										3.91	15.36	29.65	0.03	1.79	2,447							

2012

Road Construction	Days	Total Emissions lbs ROG	CO	NOx	SOx	PM	CO2
Road Grader	138	457.46	1594.93	4151.16	4.75	182.11	421,829
Sheepsfoot Roller	138	396.08	1258.66	4039.76	4.57	154.62	405,989
Medium Dozer	138	394.15	1318.71	3441.32	3.03	148.22	280,167
		1247.69	4172.30	11632.24	12.34	484.95	1,107,985
Foundation Construction							
Medium Dozer	138	544.67	2035.54	4042.06	3.45	235.98	306,305
Excavator	138	226.36	664.84	2167.43	2.83	76.66	272,840
Compaction Roller	138	359.90	1522.16	2721.78	2.86	172.61	251,614
Engine for Batch Plant	138	154.01	555.33	976.08	0.94	79.00	82,095
		1,284.94	4,777.87	9,907.36	10.08	564.26	912,854
Erection							
Large Crane	130	448.68	1595.70	4288.22	4.60	162.97	468,263
Medium Crane	130	356.35	1119.60	3461.04	3.75	129.92	355,207
		805.03	2715.30	7749.26	8.35	292.89	823,471
Electrical							
Trenching Rigs	120	468.95	1842.89	3558.15	3.32	215.35	293,644
		468.95	1842.89	3558.15	3.32	215.35	293,644

Phase 2

2013

Road Construction	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOx	SOx	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOx	SOx	PM	CO2	Days	Total Emissions lbs ROG	CO	NOx	SOx	PM	CO2
Road Grader	220	2	0.1657	0.5779	1.5040	0.0017	0.0660	152.84	4	1.16	4.05	10.53	0.01	0.46	1,070	115	133.42	465.19	1210.75	1.38	53.12	123,033
Sheepsfoot Roller	240	2	0.1435	0.4560	1.4637	0.0017	0.0560	147.10	4	1.00	3.19	10.25	0.01	0.39	1,030	115	115.52	367.11	1178.26	1.33	45.10	118,413
Medium Dozer	310	1	0.2856	0.9556	2.4937	0.0022	0.1074	203.02	4	1.00	3.34	8.73	0.01	0.38	711	115	114.96	384.62	1003.72	0.88	43.23	81,715
										3.16	10.58	29.50	0.03	1.23	2,810		363.91	1216.92	3392.74	3.60	141.44	323,162
Foundation Construction																						
Medium Dozer	150	2	0.1973	0.7375	1.4645	0.0012	0.0855	110.98	4	1.38	5.16	10.25	0.01	0.60	777	115	158.86	593.70	1178.94	1.01	68.83	89,339
Excavator	380	1	0.1640	0.4818	1.5706	0.0020	0.0556	197.71	4	0.57	1.69	5.50	0.01	0.19	692	115	66.02	193.91	632.17	0.83	22.36	79,578
Compaction Roller	156	2	0.1304	0.5515	0.9862	0.0010	0.0625	91.16	4	0.91	3.86	6.90	0.01	0.44	638	115	104.97	443.96	793.85	0.83	50.34	73,387
Engine for Batch Plant	140	1	0.1395	0.5030	0.8841	0.0009	0.0716	74.36	3	0.42	1.51	2.65	0.00	0.21	223	115	48.13	173.54	305.02	0.30	24.69	25,655
										3.29	12.22	25.30	0.03	1.45	2,330		377.98	1,405.11	2,909.98	2.96	166.22	267,960
Erection																						
Large Crane	500	2	0.1726	0.6137	1.6493	0.0018	0.0627	180.10	4	1.21	4.30	11.55	0.01	0.44	1,261	60	72.48	257.77	692.71	0.74	26.33	75,643
Medium Crane	340	2	0.1371	0.4306	1.3312	0.0014	0.0500	136.62	4	0.96	3.01	9.32	0.01	0.35	956	60	57.56	180.86	559.09	0.61	20.99	57,380
										2.17	7.31	20.86	0.02	0.79	2,217		130.04	438.63	1251.80	1.35	47.31	133,022
Electrical																						
Trenching Rigs	160	2	0.1954	0.7679	1.4826	0.0014	0.0897	122.35	4	1.37	5.38	10.38	0.01	0.63	856	55	75.23	295.63	570.79	0.53	34.55	47,105
										1.37	5.38	10.38	0.01	0.63	856		75.23	295.63	570.79	0.53	34.55	47,105

O&M Complex

2012

Grading	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOx	SOx	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOx	SOx	PM	CO2	Days	Total Emissions lbs ROG	CO	NOx	SOx	PM	CO2
980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	3.93	11.92	40.51	0.06	1.38	5,202	10	39.32	119.22	405.10	0.59	13.77	52,019
Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	1.16	3.53	4.55	0.00	0.42	401	10	11.61	35.33	45.53	0.05	4.21	4,013
Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	2.75	8.06	27.22	0.03	0.99	2,882	10	27.48	80.58	272.23	0.32	9.95	28,823
										7.84	23.51	72.29	0.10	2.79	8,486		78.41	235.13	722.85	0.95	27.92	84,855
Civil/Building																						
14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	1.38	5.70	10.75	0.01	0.61	990	35	48.31	199.58	376.31	0.39	21.37	34,636
150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	1.67	5.30	16.21	0.02	0.61	1,672	35	58.50	185.67	567.44	0.62	21.32	58,521
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	35	12.02	40.25	44.81	0.05	4.36	4,323
Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	1.37	4.60	5.12	0.01	0.50	494	35	48.08	161.02	179.24	0.21	17.43	17,290
										4.77	16.76	33.37	0.04	1.84	3,279		166.90	586.52	1167.80	1.27	64.48	114,769

Substation

2011

Grading	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOx	SOx	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOx	SOx	PM	CO2	Days	Total Emissions lbs ROG	CO	NOx	SOx	PM	CO2
980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	3.93	11.92	40.51	0.06	1.38	5,202	15	58.98	178.83	607.64	0.88	20.65	78,029
Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	1.16	3.53	4.55	0.00	0.42	401	15	17.41	52.99	68.29	0.07	6.31	6,019
Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	2.75	8.06	27.22	0.03	0.99	2,882	15	41.23	120.87	408.34	0.48	14.92	43,235
										7.84	23.51	72.29	0.10	2.79	8,486		117.62	352.69	1084.28	1.43	41.88	127,283
Civil																						
14 ton Crane	180	1	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	4	0.46	1.90	3.58	0.00	0.20	330	45	20.70	85.54	161.27	0.17	9.16	14,844
Driller	305	2	0.1008	0.3906	1.1181	0.0023	0.0366	215.21	8	1.61	6.25	17.89	0.04	0.59	3,443	45	72.57	281.24	805.02	1.67	26.38	154,949
Ditch Digger	75	2	0.1633	0.4453	0.5397	0.0005	0.0517	44.34	6	1.96	5.34	6.48	0.01	0.62	532	45	88.20	240.48	291.42	0.29	27.90	23,943
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	4	0.23	0.77	0.85	0.00	0.08	82	45	10.30	34.50	38.41	0.05	3.74	3,705
Tractor	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.04	6	1.18	4.21	5.01	0.01	0.46	492	45	52.92	189.28	225.66	0.27	20.71	22,160
										5.44	18.47	33.82	0.05	1.95	4,880		244.69	831.04	1521.78	2.45	87.89	219,601
Electrical Element																						
14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	1.38	5.70	10.75	0.01	0.61	990	7	9.66	39.92	75.26	0.08	4.27	6,927
150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	1.67	5.30	16.21	0.02	0.61	1,672	7	11.70	37.13	113.49	0.12	4.26	11,704
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	7	2.40	8.05	8.96	0.01	0.87	865
Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	1.37	4.60	5.12	0.01	0.50	494	7	9.62	32.20	35.85	0.04	3.49	3,458
										4.77	16.76	33.37	0.04	1.84	3,279		33.38	117.30	233.56	0.25	12.90	22,954
Transformer Assembly and Processing																						
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	90.95	6	1.39	5.20	11.63	0.01	0.58	1,091	0	0.00	0.00	0.00	0.00	0.00	0
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	0	0.00	0.00	0.00	0.00	0.00	0
Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	0	0.00	0.00	0.00	0.00	0.00	0
										2.07	7.50	14.19	0.02	0.83	1,338		0.00	0.00	0.00	0.00	0.00	0

2012

Grading	Days	Total Emissions lbs ROG	CO	NOx	SOx	PM	CO2
980 Loader	80	110.99	415.71	930.41	0.98	46.63	87,311
Forklift	80	27.47	92.01	102.42	0.12	9.96	9,880
Manlifts	80	27.47	92.01	102.42	0.12	9.96	9,880
		165.93	599.73	1135.26	1.23	66.55	107,072

Total Emissions

	No. WTGs	Year	Maximum Daily Emissions lbs ROG	CO	NOx	SOx	PM	CO2	Year	Total Emissions ton ROG	CO	NOx	SOx	PM	CO2	Year	Total Emissions ton ROG	CO	NOx	SOx	PM	CO2	Year	Total Emissions ton ROG	CO	NOx	SOx	PM	CO2
Alternative 1	158	2012	30.53	108.60	259.54	0.27	12.48	24,764	2011	1.00	3.47	8.21	0.01	0.40	822	2012	2.28	8.08	19.15	0.02	0.93	1,842	2013	0.47	1.68	4.06	0.00	0.19	386

Fugitive Dust Emissions

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling
D) Conrete Batch Plant

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 15% (based on SCAQMD moist and soil definition)

Emission Factor, lb/hr

PM10	PM2.5
0.70357	0.34927

Maximum Daily Dozer Use

	Hrs/day
Week 8-16	30
Week 22-32	30
Week 45	30
Week 49-55	0
Week 95-101	11

Dozer Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	21.11	10.48
Week 22-32	21.11	10.48
Week 45	21.11	10.48
Week 49-55	0.00	0.00
Week 95-101	7.39	3.67

Total Dozer Use

	Hrs/year
2011	2,610
2012	4,140
2013	1,208

Dozer Emissions (Tons/year)

	PM10	PM2.5
2011	0.92	0.46
2012	1.46	0.72
2013	0.42	0.21

B) Grading (AP-42 Section 11.9)

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

Emission Factor, lb/VMT

PM10	PM2.5
0.27540	0.01933

Emission Control
68%

Maximum Daily Grader VMT

	Hrs/day	VMT/day
Week 8-16	20	60
Week 22-32	20	60
Week 45	20	60
Week 49-55	0	0
Week 95-101	7	21

Grading Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	5.29	0.37
Week 22-32	5.29	0.37
Week 45	5.29	0.37
Week 49-55	0.00	0.00
Week 95-101	1.85	0.13

Annual Grader VMT

	Hrs/year	VMT/year
2011	1,980	5,940
2012	2,920	8,760
2013	805	2,415

Grading Emissions (Tons/year)

	PM10	PM2.5
2011	0.26	0.02
2012	0.39	0.03
2013	0.11	0.01

Fugitive Dust Emissions

C) Material Loading/Handling (AP-42, p. 13.2.4.3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 15% (SCAQMD moist)
Four separate drops are assumed

Week 8-16	888	Maximum daily tons
Week 22-32	687	Maximum daily tons
Week 45	687	Maximum daily tons
Week 49-55	105	Maximum daily tons
Week 95-101	202	Maximum daily tons
2011	58,451	Annual tons
2012	91,809	Annual tons
2013	22,841	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00054	0.00008	0.00012	0.00002

Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	0.48	0.07
Week 22-32	0.37	0.06
Week 45	0.37	0.06
Week 49-55	0.06	0.01
Week 95-101	0.11	0.02

Emissions (Tons/year)

	PM10	PM2.5
2011	0.01	0.00
2012	0.02	0.00
2013	0.01	0.00

D) Conrete Batch Plant (AP-42, Section 11.12)

PM10 emission factors are from Table 11.12-1 in AP-42, Section 11.12
PM2.5 emission factors are estimated based on PM10 emission factors and the PM2.5 fraction of PM10, which is 0.292.
The PM2.5 fraction, 0.292, is from Appendix A. Updated CEIDARS Table with PM2.5 Fractions in SCAQMD Handbook.

	PM 10 (lbs/ton concrete)	PM 2.5 (lbs/ton concrete)
Cement delivery to Silo	0.00034	0.00009928
Cement supplement delivery to Silo	0.0049	0.0014308
Weigh hopper loading	0.00072	0.00021024
Central Mix	0.0055	0.001606
Total	0.01146	0.00334632

Week 8-16	108	Maximum daily tons
Week 22-32	61	Maximum daily tons
Week 45	61	Maximum daily tons
Week 49-55	24	Maximum daily tons
Week 95-101	18	Maximum daily tons
2011	5,435	Annual tons
2012	8,467	Annual tons
2013	2,098	Annual tons

Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	1.24	0.36
Week 22-32	0.70	0.20
Week 45	0.70	0.20
Week 49-55	0.28	0.08
Week 95-101	0.21	0.06

Emissions (Tons/year)

	PM10	PM2.5
2011	0.03	0.01
2012	0.05	0.01
2013	0.01	0.00

Fugitive Dust Emissions

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

$E = [k \times (sL)^{0.91} \times (W)^{1.02}] * (1-P/4N)$
E = lb/VMT
k = Constant (0.0022 for PM10 and 0.00054 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 for 5,000<ADT<10,000 of Table 13.2.1-2)
W = Average weight of vehicles in tons (calculated below)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Week 8-16	3,318	139	3,379	6,835	16.0
Week 22-32	4,437	139	2,415	6,990	11.8
Week 45	6,426	139	5,404	11,969	14.7
Week 49-55	3,318	139	3,579	7,035	16.4
Week 95-101	2,208	139	3,755	6,102	19.4

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011	261,475	33,374	195,260	490,109	13.6
2012	954,207	101,477	539,493	1,595,178	11.9
2013	196,143	66,286	117,137	379,566	11.7

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Week 8-16	0.00287	0.00070
Week 22-32	0.00211	0.00052
Week 45	0.00264	0.00065
Week 49-55	0.00294	0.00072
Week 95-101	0.00349	0.00086

Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	19.61	4.81
Week 22-32	14.72	3.61
Week 45	31.59	7.75
Week 49-55	20.70	5.08
Week 95-101	21.32	5.23

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
2011	0.0024	0.0006
2012	0.0021	0.0005
2013	0.0021	0.0005

Emissions (Tons/year)

	PM10	PM2.5
2011	0.60	0.15
2012	1.69	0.41
2013	0.40	0.10

Fugitive Dust Emissions

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Week 8-16	93	51	166	310	18.0
Week 22-32	87	51	138	276	17.1
Week 45	126	51	212	389	18.0
Week 49-55	93	51	54	198	11.2
Week 95-101	71	51	122	243	17.2

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2011	7,515	4,432	11,408	23,355	16.8
2012	25,792	14,984	25,194	65,971	14.1
2013	5,268	5,409	6,289	16,965	14.3

Uncontrolled Emission Factors and Emissions

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Week 8-16	3.36	0.34
Week 22-32	3.28	0.33
Week 45	3.36	0.34
Week 49-55	2.71	0.27
Week 95-101	3.30	0.33

Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	1,041.64	104.16
Week 22-32	904.04	90.40
Week 45	1,306.13	130.61
Week 49-55	536.03	53.60
Week 95-101	801.53	80.15

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
2011	3.26	0.33
2012	3.01	0.30
2013	3.03	0.30

Emissions (Tons/year)

	PM10	PM2.5
2011	38.05	3.80
2012	99.14	9.91
2013	25.69	2.57

Controlled Emissions (assumes 84% soil binder)

Emissions (Lbs/day)

	PM10	PM2.5
Week 8-16	166.66	16.67
Week 22-32	144.65	14.46
Week 45	208.98	20.90
Week 49-55	85.77	8.58
Week 95-101	128.25	12.82

Emission Control
84%

Emissions (Tons/year)

	PM10	PM2.5
2011	6.09	0.61
2012	15.86	1.59
2013	4.11	0.41

Fugitive Dust Emissions

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area
Disturbed areas are controlled by soil stabilizer suppressing 84% control
Restoration of disturbed acres creates no net emission increase of permanently disturbed acres

Alternative 1 - Proposed Action

Year	Disturbed Acres (acre)	Emissions (Tons/year)		Emissions (Lbs/day)	
		PM10	PM2.5	PM10	PM2.5
2011	205.96	6.23620	1.27729	47.24	9.68
2012	328.53	9.94723	2.03738	75.36	15.43
2013	38.01	1.15096	0.23574	8.72	1.79

Alternative 2

Year	Disturbed Acres (acre)	Emissions (Tons/year)		Emissions (Lbs/day)	
		PM10	PM2.5	PM10	PM2.5
2011	205.96	6.23620	1.27729	47.24	9.68
2012	328.53	9.94723	2.03738	75.36	15.43
2013	---	---	---	---	---

Alternative 3

Year	Disturbed Acres (acre)	Emissions (Tons/year)		Emissions (Lbs/day)	
		PM10	PM2.5	PM10	PM2.5
2011	184.08	5.57363	1.14159	42.22	8.65
2012	292.48	8.85594	1.81387	67.09	13.74
2013	---	---	---	---	---

Fugitive Dust Emissions Summary for Alternative 1 - Proposed Action

Fugitive Dust Emission Totals (tons/year)

	2011		2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.92	0.46	1.46	0.72	0.42	0.21
Grading	0.26	0.02	0.39	0.03	0.11	0.01
Soil Handling	0.01	0.00	0.02	0.00	0.01	0.00
Concrete Batch Plant	0.03	0.01	0.05	0.01	0.01	0.00
Paved Road Dust	0.60	0.15	1.69	0.41	0.40	0.10
Unpaved Road Dust	6.09	0.61	15.86	1.59	4.11	0.41
Disturbed Area Dust	6.24	1.28	9.95	2.04	1.15	0.24
Totals	14.14	2.52	29.41	4.81	6.21	0.97

Daily Maximum Fugitive Dust Emissions (lbs/day, 2012)

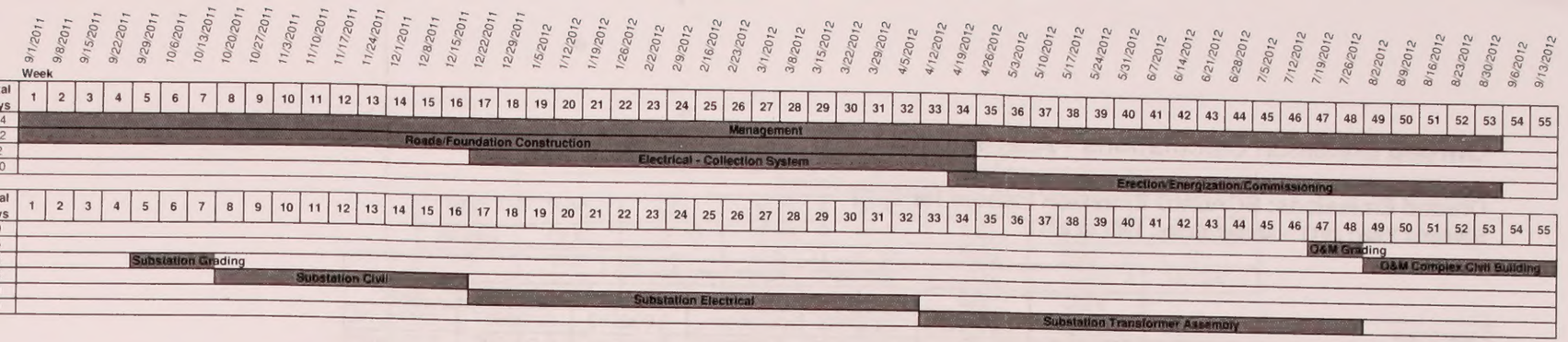
	Week 8-16		Week 22-32		Week 45	
	PM10 lbs/day	PM2.5 lbs/day	PM10 lbs/day	PM2.5 lbs/day	PM10 lbs/day	PM2.5 lbs/day
Dozer	21.11	10.48	21.11	10.48	21.11	10.48
Grading	5.29	0.37	5.29	0.37	5.29	0.37
Soil Handling	0.48	0.07	0.37	0.06	0.37	0.06
Concrete Batch Plant	1.24	0.36	0.70	0.20	0.70	0.20
Paved Road Dust	19.61	4.81	14.72	3.61	31.59	7.75
Unpaved Road Dust	166.66	16.67	144.65	14.46	208.98	20.90
Disturbed Area Dust	47.24	9.68	75.36	15.43	75.36	15.43
Totals	261.64	42.44	262.19	44.62	343.40	55.20

	Week 49-55		Week 95-101	
	PM10 lbs/day	PM2.5 lbs/day	PM10 lbs/day	PM2.5 lbs/day
Dozer	0.00	0.00	7.39	3.67
Grading	0.00	0.00	1.85	0.13
Soil Handling	0.06	0.01	0.11	0.02
Concrete Batch Plant	0.28	0.08	0.21	0.06
Paved Road Dust	20.70	5.08	21.32	5.23
Unpaved Road Dust	85.77	8.58	128.25	12.82
Disturbed Area Dust	75.36	15.43	8.72	1.79
Totals	182.15	29.18	167.84	23.72

Construction Schedule - Alternative 3

Phase I (105 WTG)	# of employees	Start Week	End Week	2011	2012	2013	Total Days
Management	27	1	53	87	177	0	264
Roads/Foundation Construction	64	1	34	87	85	0	172
Electrical	38	17	34	7	85	0	92
Erection	64	34	53	0	100	0	100

O&M Complex and Substation	# of employees	Start Week	End Week	2011	2012	2013	Total Days
O&M Complex Grading	4	47	48	0	10	0	10
O&M Complex Civil Building	12	49	55	0	35	0	35
Substation Grading	8	5	7	15	0	0	15
Substation Civil	12	8	16	45	0	0	45
Substation Electrical	9	17	32	7	73	0	80
Substation Tranformer Assembly	8	33	48	0	80	0	80

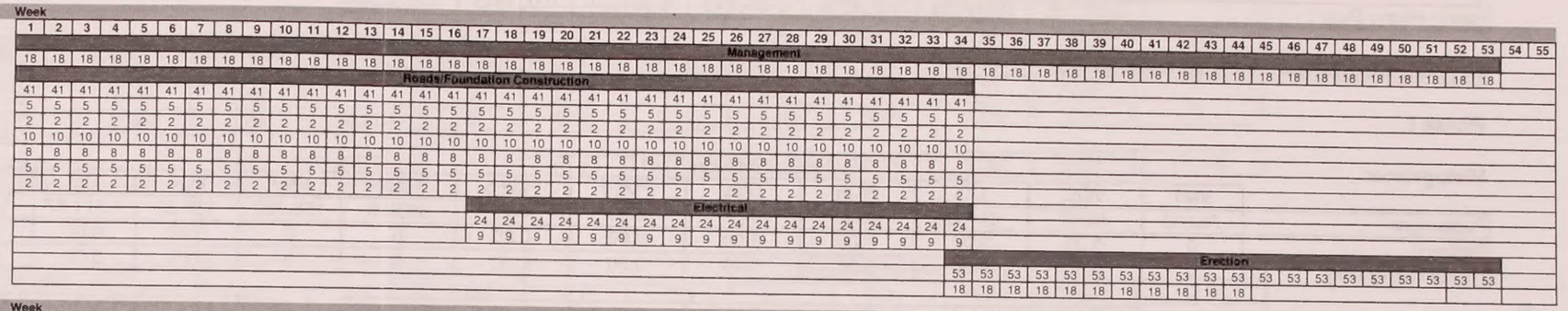


Daily Traffic Volume

Round Trip Assumptions

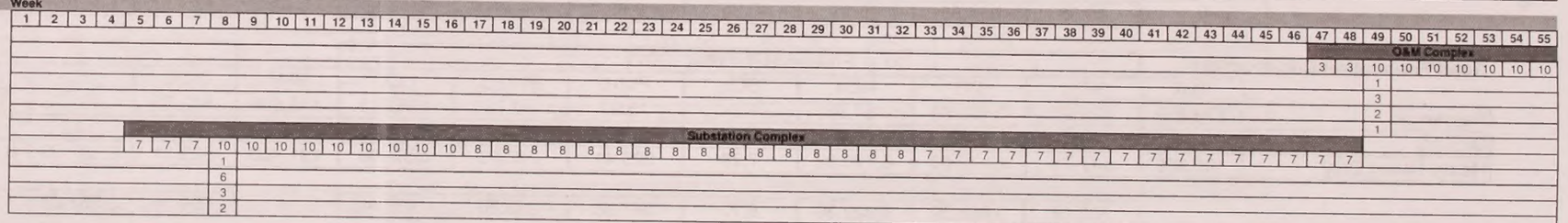
Phase I (105 WTG)

	Vehicle Class	Route	Direction
Management			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Roads/Foundation Construction			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Road Maintenance and Dust Control	HHDT	I-8	From Pine Valley (WNW)
Water for Concrete Foundation	HHDT	I-8	From Pine Valley (WNW)
Gravel for Roads	HHDT	Local Roads	From Ocotillo
Concrete Foundation Aggregate	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Concrete Foundation Cement	HHDT	I-8	From Victorville (NNW)
Electrical			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Road Maintenance and Dust Control	HHDT	I-8	From Pine Valley (WNW)
Erection			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
WTG Delivery	HHDT	I-8	From Texas (E)



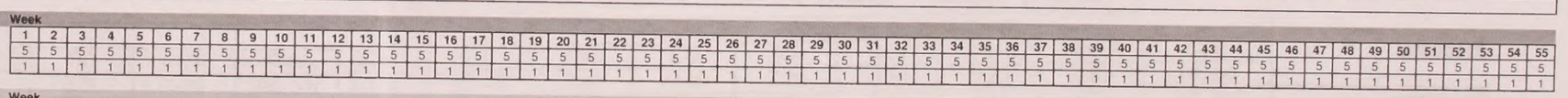
O&M Complex and Substation Construction

	Vehicle Class	Route	Direction
O&M Complex			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Concrete Foundations	HHDT	I-8	From Pine Valley (WNW)
Aggregate for Concrete Foundations	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Cement for Concrete Foundations	HHDT	I-8	From Victorville (NNW)
Substation			
Employees	Passenger	I-8	From El Centro (E) & San Diego (W)
Water for Concrete Foundations	HHDT	I-8	From Pine Valley (WNW)
Aggregate for Concrete Foundations	HHDT	Local Roads	From near Thermal, California
Concrete Foundation Sand	HHDT	Local Roads	From Ocotillo
Cement for Concrete Foundations	HHDT	I-8	From Victorville (NNW)



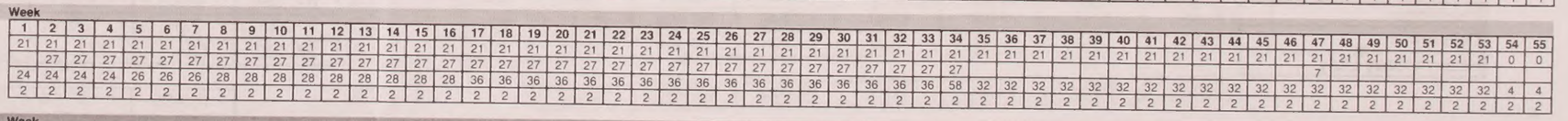
Miscellaneous

	Vehicle Class	Route	Direction
Miscellaneous Deliveries/Crew Trucks	Delivery	I-8	From San Diego (W)
Fuel Deliveries	HHDT	I-8	From El Centro (E)



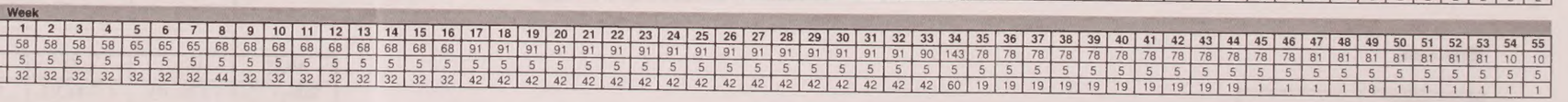
Internal Project Trips

	Vehicle Class	Route	Direction
Pickups	Passenger	Onsite and Local Roads	From Staging/Parking Area to WTGs
Concrete Delivery	HHDT	Onsite and Local Roads	From Batch Plant to WTGs
Staging Area Material/Crew Trucks to WTG Sites	Delivery	Onsite and Local Roads	From Staging/Parking Area to WTGs
Offroad Equipment Movement	HHDT	Onsite and Local Roads	Internal Site Roads



Total Number of Daily Offsite Vehicle Trips (round trips)

Offsite Trip Totals



Onroad Emission Calculations - Alternative 3

Onroad Emissions: SCAQMD Emission Factors for 2011

Scenario Year: 2011 -- Model Years: 1967 to 2011

	Emission Factors lbs/mile - 2011						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000852	0.008263	0.000845	0.000011	0.000089	0.000057	1.1023515
Delivery	0.002419	0.016932	0.018934	0.000027	0.000701	0.000597	2.7518082
Heavy-Heavy Duty	0.002795	0.011125	0.034558	0.000040	0.001661	0.001445	4.2204568

Onroad Equipment Annual Emissions

Phase I

Management

		Emissions lbs/year - 2011								Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	78,039	66.52	644.82	65.91	0.84	6.93	4.41	86,026	158,769	135.32	1,311.87	134.10	1.71	14.10	8.97	175,019
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		66.52	644.82	65.91	0.84	6.93	4.41	86,026		135.32	1,311.87	134.10	1.71	14.10	8.97	175,019

Road/Foundation Construction

		Emissions lbs/year - 2011								Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	179,829	153.27	1,485.88	151.88	1.94	15.97	10.16	198,235	175,695	149.75	1,451.73	148.39	1.89	15.60	9.93	193,678
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	195,929	547.71	2,179.63	6,770.92	7.78	325.41	283.09	826,908	191,425	535.11	2,129.53	6,615.27	7.60	317.93	276.59	807,899
		700.98	3,665.52	6,922.80	9.72	341.38	293.26	1,025,143		684.86	3,581.25	6,763.66	9.50	333.53	286.52	1,001,577

Electrical

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	106,080	90.42	876.51	89.60	1.14	9.42	6.00	116,937
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	24,480	68.43	272.33	845.98	0.97	40.66	35.37	103,317
	158.85	1,148.84	935.58	2.12	50.08	41.37	220,254

Erection

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	206,700	176.18	1,707.91	174.58	2.23	18.35	11.68	227,856
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	157,445	440.13	1,751.51	5,440.99	6.25	261.50	227.49	664,488
	616.30	3,459.42	5,615.57	8.48	279.85	239.17	892,344

Onroad Emission Calculations - Alternative 3

O&M Complex and Substation

O&M Complex

	VMT	Emissions lbs/year - 2012						
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	14,820	12.63	122.45	12.52	0.16	1.32	0.84	16,337
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	2,394	6.69	26.63	82.73	0.10	3.98	3.46	10,104
		19.32	149.09	95.25	0.25	5.29	4.30	26,441

Substation

	VMT	Emissions lbs/year - 2011							VMT	Emissions lbs/year - 2012						
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2		VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	6,250	5.33	51.64	5.28	0.07	0.55	0.35	6,890	15,590	13.29	128.81	13.17	0.17	1.38	0.88	17,185
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	4,791	13.39	53.30	165.57	0.19	7.96	6.92	20,220	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		18.72	104.94	170.85	0.26	8.51	7.28	27,110		13.29	128.81	13.17	0.17	1.38	0.88	17,185

Miscellaneous

Miscellaneous

	VMT	Emissions lbs/year - 2011							VMT	Emissions lbs/year - 2012						
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2		VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery	32,250	78.00	546.06	610.60	0.88	22.61	19.25	88,744	96,378	233.11	1,631.91	1,824.79	2.63	67.56	57.52	265,213
Heavy-Heavy Duty	1,336	3.74	14.87	46.18	0.05	2.22	1.93	5,640	3,994	11.16	44.43	138.02	0.16	6.63	5.77	16,856
		81.74	560.93	656.78	0.93	24.83	21.18	94,385		244.27	1,676.34	1,962.80	2.79	74.19	63.29	282,069

Internal Project Trip Annual Emissions

	VMT	Emissions lbs/year - 2011							VMT	Emissions lbs/year - 2012						
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2		VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	4,872	4.15	40.26	4.11	0.05	0.43	0.28	5,371	9,349	7.97	77.25	7.90	0.10	0.83	0.53	10,306
Delivery	5,556	13.44	94.08	105.20	0.15	3.89	3.32	15,289	12,996	31.43	220.05	246.05	0.35	9.11	7.76	35,761
Heavy-Heavy Duty	4,612	12.89	51.31	159.38	0.18	7.66	6.66	19,465	5,356	14.97	59.59	185.11	0.21	8.90	7.74	22,606
		30.48	185.64	268.69	0.39	11.99	10.26	40,124		54.37	356.88	439.05	0.67	18.84	16.02	68,673

Onroad Emission Calculations - Alternative 3, for global GHG emissions estimates

Onroad Emissions: SCAQMD Emission Factors for 2011

Scenario Year: 2011 -- Model Years: 1967 to 2011

	Emission Factors lbs/mile - 2011						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000852	0.008263	0.000845	0.000011	0.000089	0.000057	1.1023515
Delivery	0.002419	0.016932	0.018934	0.000027	0.000701	0.000597	2.7518082
Heavy-Heavy Duty	0.002795	0.011125	0.034558	0.000040	0.001661	0.001445	4.2204568

Onroad Equipment Annual Emissions

Phase I

Management

		Emissions lbs/year - 2011								Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	228,114	194.43	1,884.85	192.67	2.46	20.25	12.89	251,462	464,094	395.56	3,834.70	391.98	5.00	41.21	26.23	511,595
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		194.43	1,884.85	192.67	2.46	20.25	12.89	251,462		395.56	3,834.70	391.98	5.00	41.21	26.23	511,595

Road/Foundation Construction

		Emissions lbs/year - 2011								Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	525,654	448.03	4,343.35	443.97	5.66	46.67	29.71	579,455	513,570	437.73	4,243.50	433.76	5.53	45.60	29.03	566,135
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	391,853	1,095.40	4,359.21	13,541.68	15.57	650.82	566.18	1,653,797	382,845	1,070.22	4,259.00	13,230.38	15.21	635.86	553.17	1,615,779
		1,543.43	8,702.57	13,985.65	21.23	697.49	595.89	2,233,253		1,507.95	8,502.51	13,664.14	20.74	681.46	582.20	2,181,913

Electrical

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	310,080	264.29	2,562.12	261.89	3.34	27.53	17.53	341,817
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	91,800	256.62	1,021.24	3,172.43	3.65	152.47	132.64	387,438
		520.91	3,583.36	3,434.33	6.99	180.00	150.17	729,255

Erection

	Emissions lbs/year - 2012						
VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	604,200	514.98	4,992.36	510.31	6.51	53.65	34.15	666,041
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	2,712,600	7,582.89	30,176.66	93,742.28	107.75	4,505.29	3,919.40	11,448,411
		8,097.87	35,169.02	94,252.59	114.26	4,558.94	3,953.55	12,114,452

Onroad Emission Calculations - Alternative 3, for global GHG emissions estimates

O&M Complex and Substation

O&M Complex

	VMT	Emissions lbs/year - 2012						
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	43,320	36.92	357.94	36.59	0.47	3.85	2.45	47,754
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	4,254	11.89	47.32	147.01	0.17	7.07	6.15	17,954
		48.81	405.27	183.60	0.64	10.91	8.60	65,708

Substation

	Emissions lbs/year - 2011								Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	18,270	15.57	150.96	15.43	0.20	1.62	1.03	20,140	45,570	38.84	376.53	38.49	0.49	4.05	2.58	50,234
Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Heavy-Heavy Duty	8,577	23.98	95.42	296.40	0.34	14.25	12.39	36,199	0	0.00	0.00	0.00	0.00	0.00	0.00	0
		39.55	246.38	311.84	0.54	15.87	13.43	56,339		38.84	376.53	38.49	0.49	4.05	2.58	50,234

Miscellaneous

Miscellaneous

	Emissions lbs/year - 2011								Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0
Delivery	94,268	228.00	1,596.18	1,784.83	2.57	66.08	56.26	259,407	281,720	681.39	4,770.20	5,333.99	7.68	197.48	168.14	775,239
Heavy-Heavy Duty	3,906	10.92	43.46	135.00	0.16	6.49	5.64	16,487	11,674	32.63	129.87	403.44	0.46	19.39	16.87	49,271
		238.92	1,639.64	1,919.83	2.73	72.57	61.90	275,894		714.03	4,900.07	5,737.43	8.15	216.87	185.00	824,510

Internal Project Trip Annual Emissions

	Emissions lbs/year - 2011								Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	VMT	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	4,872	4.15	40.26	4.11	0.05	0.43	0.28	5,371	9,349	7.97	77.25	7.90	0.10	0.83	0.53	10,306
Delivery	5,556	13.44	94.08	105.20	0.15	3.89	3.32	15,289	12,996	31.43	220.05	246.05	0.35	9.11	7.76	35,761
Heavy-Heavy Duty	4,612	12.89	51.31	159.38	0.18	7.66	6.66	19,465	5,356	14.97	59.59	185.11	0.21	8.90	7.74	22,606
		30.48	185.64	268.69	0.39	11.99	10.26	40,124		54.37	356.88	439.05	0.67	18.84	16.02	68,673

Offroad Equipment Emission Calculations - Alternative 3

SCAQMD Offroad Emission Factors		HP	Quantity	2011 SCAQMD Emission Factor lbs/hour						Uses (hr/day)	Total Operating Days
				ROG	CO	NOx	SOX	PM	CO2		
Phase I											
Road Construction	Road Grader	220	2	0.1657	0.5779	1.5040	0.0017	0.0660	152.84	10	225
	Sheepsfoot Roller	240	2	0.1435	0.4560	1.4637	0.0017	0.0560	147.10	10	225
	Medium Dozer	310	1	0.2856	0.9556	2.4937	0.0022	0.1074	203.02	10	225
Foundation Construction	Medium Dozer	150	2	0.1973	0.7375	1.4645	0.0012	0.0855	110.98	10	225
	Excavator	380	1	0.1640	0.4818	1.5706	0.0020	0.0556	197.71	10	225
	Compaction Roller	156	2	0.1304	0.5515	0.9862	0.0010	0.0625	91.16	10	225
	Engine for Batch Plant	140	1	0.1395	0.5030	0.8841	0.0009	0.0716	74.3618	8	225
Erection	Large Crane	500	2	0.1726	0.6137	1.6493	0.0018	0.0627	180.10	10	130
	Medium Crane	340	2	0.1371	0.4306	1.3312	0.0014	0.0500	136.62	10	130
Electrical	Trenching Rigs	160	2	0.1954	0.7679	1.4826	0.0014	0.0897	122.35	10	120
O&M and Substation Foundation											
O&M Complex											
Grading	980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	10
	Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	10
	Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	10
Civil/Building	14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	35
	150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	35
	Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	35
	Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	35
Substation											
Grading	980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	15
	Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	15
	Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	15
Civil	14 ton Crane	180	1	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	4	25
	Driller	305	2	0.1008	0.3906	1.1181	0.0023	0.0366	215.21	8	25
	Ditch Digger	75	2	0.1633	0.4453	0.5397	0.0005	0.0517	44.34	6	25
	Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	4	25
	Tractor	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.04	6	25
Electrical Element	14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	40
	150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	40
	Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40
	Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40
Transformer Assembly and Processing	50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	90.95	6	40
	Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40
	Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	40

* SCAQMD emission factors are linearly interpolated for the specific hp size of the assumed equipment

Phase 1

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							2011 Total Emissions lbs							2012 Total Emissions lbs						
Road Construction	HP	Number	ROG	CO	NOx	SOx	PM	CO2	Hours/day	ROG	CO	NOx	SOx	PM	CO2	Days	ROG	CO	NOx	SOx	PM	CO2	Days	ROG	CO	NOx	SOx	PM	CO2
Road Grader	220	2	0.1657	0.5779	1.5040	0.0017	0.0660	152.84	10	3.31	11.56	30.08	0.03	1.32	3,057	87	288.40	1005.50	2617.04	2.99	114.81	265,936	85	281.77	982.38	2556.87	2.92	112.17	259,822
Sheepsfoot Roller	240	2	0.1435	0.4560	1.4637	0.0017	0.0560	147.10	10	2.87	9.12	29.27	0.03	1.12	2,942	87	249.70	793.50	2546.81	2.88	97.48	255,949	85	243.96	775.26	2488.26	2.81	95.24	250,065
Medium Dozer	310	1	0.2856	0.9556	2.4937	0.0022	0.1074	203.02	10	2.86	9.56	24.94	0.02	1.07	2,030	87	248.49	831.36	2169.52	1.91	93.44	176,627	85	242.77	812.25	2119.65	1.86	91.29	172,567
										9.04	30.23	84.29	0.09	3.51	8,029		786.59	2630.36	7333.37	7.78	305.73	698,512		768.50	2569.90	7164.78	7.60	298.70	682,454
Foundation Construction																													
Medium Dozer	150	2	0.1973	0.7375	1.4645	0.0012	0.0855	110.98	10	3.95	14.75	29.29	0.02	1.71	2,220	87	343.38	1283.27	2548.26	2.17	148.77	193,105	85	335.48	1253.77	2489.68	2.12	145.35	188,666
Excavator	380	1	0.1640	0.4818	1.5706	0.0020	0.0556	197.71	10	1.64	4.82	15.71	0.02	0.56	1,977	87	142.70	419.14	1366.42	1.78	48.33	172,008	85	139.42	409.50	1335.01	1.74	47.22	168,054
Compaction Roller	156	2	0.1304	0.5515	0.9862	0.0010	0.0625	91.16	10	2.61	11.03	19.72	0.02	1.25	1,823	87	226.89	959.62	1715.91	1.80	108.82	158,626	85	221.68	937.56	1676.46	1.76	106.32	154,980
Engine for Batch Plant	140	1	0.1395	0.5030	0.8841	0.0009	0.0716	74.36	8	1.12	4.02	7.07	0.01	0.57	595	87	97.10	350.10	615.35	0.60	49.80	51,756	85	94.86	342.05	601.21	0.58	48.66	50,566
										9.31	34.62	71.79	0.07	4.09	6,615		810.07	3,012.14	6,245.94	6.35	355.73	575,495		791.45	2,942.89	6,102.36	6.21	347.55	562,265
Erection																													
Large Crane	500	2	0.1726	0.6137	1.6493	0.0018	0.0627	180.10	10	3.45	12.27	32.99	0.04	1.25	3,602	100	345.14	1227.46	3298.63	3.54	125.36	360,203	100	345.14	1227.46	3298.63	3.54	125.36	360,203
Medium Crane	340	2	0.1371	0.4306	1.3312	0.0014	0.0500	136.62	10	2.74	8.61	26.62	0.03	1.00	2,732	100	274.12	861.23	2662.34	2.89	99.94	273,236	100	274.12	861.23	2662.34	2.89	99.94	273,236
										6.19	20.89	59.61	0.06	2.25	6,334		619.26	2088.69	5960.97	6.42	225.30	633,439		619.26	2088.69	5960.97	6.42	225.30	633,439
Electrical																													
Trenching Rigs	160	2	0.1954	0.7679	1.4826	0.0014	0.0897	122.35	10	3.91	15.36	29.65	0.03	1.79	2,447	85	332.17	1305.38	2520.36	2.35	152.54	207,998	85	332.17	1305.38	2520.36	2.35	152.54	207,998
										3.91	15.36	29.65	0.03	1.79	2,447		332.17	1305.38	2520.36	2.35	152.54	207,998		332.17	1305.38	2520.36	2.35	152.54	207,998
O&M Complex																													
Grading	HP	Number	ROG	CO	NOx	SOx	PM	CO2	Hours/day	ROG	CO	NOx	SOx	PM	CO2	Days	ROG	CO	NOx	SOx	PM	CO2	Days	ROG	CO	NOx	SOx	PM	CO2
980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	3.93	11.92	40.51	0.06	1.38	5,202	10	39.32	119.22	405.10	0.59	13.77	52,019	10	39.32	119.22	405.10	0.59	13.77	52,019
Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	1.16	3.53	4.55	0.00	0.42	401	10	11.61	35.33	45.53	0.05	4.21	4,013	10	11.61	35.33	45.53	0.05	4.21	4,013
Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	2.75	8.06	27.22	0.03	0.99	2,882	10	27.48	80.58	272.23	0.32	9.95	28,823	10	27.48	80.58	272.23	0.32	9.95	28,823
										7.84	23.51	72.29	0.10	2.79	8,486		78.41	235.13	722.85	0.95	27.92	84,855		78.41	235.13	722.85	0.95	27.92	84,855
Civil/Building																													
14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	1.38	5.70	10.75	0.01	0.61	990	35	48.31	199.58	376.31	0.39	21.37	34,636	35	48.31	199.58	376.31	0.39	21.37	34,636
150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	1.67	5.30	16.21	0.02	0.61	1,672	35	58.50	185.67	567.44	0.62	21.32	58,521	35	58.50	185.67	567.44	0.62	21.32	58,521
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	35	12.02	40.25	44.81	0.05	4.36	4,323	35	12.02	40.25	44.81	0.05	4.36	4,323
Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	1.37	4.60	5.12	0.01	0.50	494	35	48.08	161.02	179.24	0.21	17.43	17,290	35	48.08	161.02	179.24	0.21	17.43	17,290
										4.77	16.76	33.37	0.04	1.84	3,279		166.90	586.52	1167.80	1.27	64.48	114,769		166.90	586.52	1167.80	1.27	64.48	114,769
Substation																													
Grading	HP	Number	ROG	CO	NOx	SOx	PM	CO2	Hours/day	ROG	CO	NOx	SOx	PM	CO2	Days	ROG	CO	NOx	SOx	PM	CO2							
980 Loader	315	3	0.1638	0.4967	1.6879	0.0024	0.0574	216.75	8	3.93	11.92	40.51	0.06	1.38	5,202	15	58.98	178.83	607.64	0.88	20.65	78,029							
Compaction Roller	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.13	5	1.16	3.53	4.55	0.00	0.42	401	15	17.41	52.99	68.29	0.07	6.31	6,019							
Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.15	8	2.75	8.06	27.22	0.03	0.99	2,882	15	41.23	120.87	408.34	0.48	14.92	43,235							
										7.84	23.51	72.29	0.10	2.79	8,486		117.62	352.69	1084.28	1.43	41.88	127,283							
Civil																													
14 ton Crane	180	1	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	4	0.46	1.90	3.58	0.00	0.20	330	45	20.70	85.54	161.27	0.17	9.16	14,844							
Driller	305	2	0.1008	0.3906	1.1181	0.0023	0.0366	215.21	8	1.61	6.25	17.89	0.04	0.59	3,443	45	72.57	281.24	805.02	1.67	26.38	154,949							
Ditch Digger	75	2	0.1633	0.4453	0.5397	0.0005	0.0517	44.34	6	1.96	5.34	6.48	0.01	0.62	532	45	88.20	240.48	291.42	0.29	27.90	23,943							
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	4	0.23	0.77	0.85	0.00	0.08	82	45	10.30	34.50	38.41	0.05	3.74	3,705							
Tractor	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.04	6	1.18	4.21	5.01	0.01	0.46	492	45	52.92	189.28	225.66	0.27	20.71	22,160							
										5.44	18.47	33.82	0.05	1.95	4,880		244.69	831.04	1521.78	2.45	87.89	219,601							
Electrical Element																													
14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.47	6	1.38	5.70	10.75	0.01	0.61	990	7	9.66	39.92	75.26	0.08	4.27	6,927	73	100.76	416.27	784.87	0.81	44.56	72,240
150 ton Crane	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.34	6	1.67	5.30	16.21	0.02	0.61	1,672	7	11.70	37.13	113.49	0.12	4.26	11,704	73	122.01	387.24	1183.52	1.28	44.47	122,058
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	7	2.40	8.05	8.96	0.01	0.87	865	73	25.07	83.96	93.46	0.11	9.09	9,016
Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	1.37	4.60	5.12	0.01	0.50	494	7	9.62	32.20	35.85	0.04	3.49	3,458	73	100.28	335.83	373.85	0.44	36.36	36,063
										4.77	16.76	33.37	0.04	1.84	3,279		33.38	117.30	233.56	0.25	12.90	22,954		348.11	1223.31	2435.69	2.65	134.49	239,376
Transformer Assembly and Processing																													
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	90.95	6	1.39	5.20	11.63	0.01	0.58	1,091	0	0.00	0.00	0.00	0.00	0.00	0	80	110.99	415.71	930.41	0.98	46.63	87,311
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	0	0.00	0.00	0.00	0.00	0.00	0	80	27.47	92.01	102.42	0.12	9.96	9,880
Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.58	6	0.34	1.15	1.28	0.00	0.12	124	0	0.00	0.00	0.00	0.00	0.00	0	80	27.47	92.01	102.42	0.12	9.96	9,880
										2.07	7.50	14.19	0.02	0.83	1,338		0.00	0.00	0.00	0.00	0.00	0		165.93	599.73	1135.26	1.23	66.55	107,072

Total Emissions

	No. WTGs	Year	Maximum Daily Emissions lbs						Year	Total Emissions ton						Year	Total Emissions ton					
			ROG	CO	NOx	SOx	PM	CO2		ROG	CO	NOx	SOx	PM	CO2		ROG	CO	NOx	SOx	PM	CO2
Alternative 3	105	2012	30.53	108.60	259.54	0.27	12.48	24763.58	2011	1.00	3.47	8.21	0.01	0.40	822	2012	1.64	5.78	13.61	0.01	0.66	1,316

Fugitive Dust Emissions - Alternative 3

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling
D) Conrete Batch Plant

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 15% (based on SCAQMD moist and soil definition)

Emission Factor, lb/hr

PM10	PM2.5
0.70357	0.34927

Total Dozer Use

	Hrs/year
2011	2,610
2012	2,550

Dozer Emissions (Tons/year)

	PM10	PM2.5
2011	0.92	0.46
2012	0.90	0.45

B) Grading (AP-42 Section 11.9)

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

Emission Factor, lb/VMT

PM10	PM2.5
0.27540	0.01933

Emission Control
68%

Annual Grader VMT

	Hrs/year	VMT/year
2011	1,980	5,940
2012	1,860	5,580

Grading Emissions (Tons/year)

	PM10	PM2.5
2011	0.26	0.02
2012	0.25	0.02

Fugitive Dust Emissions - Alternative 3

C) Material Loading/Handling (AP-42, p. 13.2.4.3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.053 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 15% (SCAQMD moist)
Four separate drops are assumed

2011	58,451	Annual tons
2012	41,826	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00054	0.00008	0.00012	0.00002

Emissions (Tons/year)

	PM10	PM2.5
2011	0.01	0.00
2012	0.01	0.00

D) Conrete Batch Plant (AP-42, Section 11.12)

PM10 emission factors are from Table 11.12-1 in AP-42, Section 11.12
PM2.5 emission factors are estimated based on PM10 emission factors and the PM2.5 fraction of PM10, which is 0.292.
The PM2.5 fraction, 0.292, is from Appendix A. Updated CEIDARS Table with PM2.5 Fractions in SCAQMD Handbook.

	PM 10 (lbs/ton concrete)	PM 2.5 (lbs/ton concrete)
Cement delivery to Silo	0.00034	0.00009928
Cement supplement delivery to Silo	0.0049	0.0014308
Weigh hopper loading	0.00072	0.00021024
Central Mix	0.0055	0.001606
Total	0.01146	0.00334632

2011	5,435	Annual tons
2012	3,876	Annual tons

Emissions (Tons/year)

	PM10	PM2.5
2011	0.03	0.01
2012	0.02	0.01

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

$E = [k \times (sL)^{0.91} \times (W)^{1.02}]*(1-P/4N)$
E = lb/VMT
k = Constant (0.0022 for PM10 and 0.00054 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 for 5,000<ADT<10,000 of Table 13.2.1-2)
W = Average weight of vehicles in tons (calculated below)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011	261,475	33,374	195,260	490,109	13.6
2012	669,035	101,122	365,471	1,135,628	11.5

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
2011	0.0024	0.0006
2012	0.0021	0.0005

Emissions (Tons/year)

	PM10	PM2.5
2011	0.60	0.15
2012	1.17	0.29

Fugitive Dust Emissions - Alternative 3

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2011	7,515	4,432	11,408	23,355	16.8
2012	17,967	8,251	19,622	45,841	15.1

Uncontrolled Emission Factors and Emissions

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
2011	3.26	0.33
2012	3.10	0.31

Emissions (Tons/year)

	PM10	PM2.5
2011	38.05	3.80
2012	71.07	7.11

Controlled Emissions (assumes 84% soil binder)

Emissions (Tons/year)

	PM10	PM2.5
2011	6.09	0.61
2012	11.37	1.14

Emission Control
84%

Fugitive Dust Emissions - Alternative 3

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area
Disturbed areas are controlled by soil stabilizer suppressing 84% control
Restoration of disturbed acres creates no net emission increase of permanently disturbed acres

Alternative 3

Year	Disturbed Acres (acre)	Emissions (Tons/year)		Emissions (Lbs/day)	
		PM10	PM2.5	PM10	PM2.5
2011	184.08	5.57363	1.14159	42.22	8.65
2012	292.48	8.85594	1.81387	67.09	13.74

Fugitive Dust Emissions Summary for Alternative 3

Fugitive Dust Emission Totals (tons/year)

	2011		2012	
	PM10 t/yr	**PM2.5 t/yr**	**PM10 t/yr**	**PM2.5 t/yr**
Dozer	0.92	0.46	0.90	0.45
Grading	0.26	0.02	0.25	0.02
Soil Handling	0.01	0.00	0.01	0.00
Concrete Batch Plant	0.03	0.01	0.02	0.01
Paved Road Dust	0.60	0.15	1.17	0.29
Unpaved Road Dust	6.09	0.61	11.37	1.14
Disturbed Area Dust	5.57	1.14	8.86	1.81
Totals	13.48	2.38	22.57	3.71

Ocotillo Wind Energy Facility - O&M Emissions

Alternative 1 - Proposed Action
No. of wind turbine generator: 158

Annual Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2E (Imperial County)	CO2E (global)
Onroad Vehicles	0.15	1.42	0.26	0.00	0.02	0.01	209	546
Offroad Equipment	0.09	0.33	0.63	0.00	0.03	0.03	67	67
Emergency Engine	0.03	0.04	0.04	0.00	0.00	0.00	4	4
Fugitive Dust	---	---	---	---	8.44	1.39	---	---
Totals	**0.27**	**1.80**	**0.93**	**0.00**	**8.49**	**1.44**	**280**	**617**

Daily Emissions

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2E (Imperial County)
Onroad Vehicles	1.23	10.05	5.17	0.02	0.27	0.21	1,696
Offroad Equipment	2.07	7.52	16.01	0.02	0.79	0.73	1,734
Emergency Engine	0.99	1.55	1.67	0.00	0.06	0.06	152
Fugitive Dust	---	---	---	---	94.34	12.39	---
Totals	**4.29**	**19.12**	**22.85**	**0.04**	**95.47**	**13.39**	**3,582**

Alternative 2
No. of wind turbine generator: 137

Annual Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2E (Imperial County)	CO2E (global)
Onroad Vehicles	0.15	1.42	0.26	0.00	0.02	0.01	209	546
Offroad Equipment	0.08	0.29	0.54	0.00	0.03	0.03	58	58
Emergency Engine	0.03	0.04	0.04	0.00	0.00	0.00	4	4
Fugitive Dust	---	---	---	---	7.94	1.29	---	---
Totals	**0.26**	**1.75**	**0.85**	**0.00**	**7.99**	**1.34**	**271**	**608**

Daily Emissions

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2E (Imperial County)
Onroad Vehicles	1.23	10.05	5.17	0.02	0.27	0.21	1,696
Offroad Equipment	2.07	7.52	16.01	0.02	0.79	0.73	1,734
Emergency Engine	0.99	1.55	1.67	0.00	0.06	0.06	152
Fugitive Dust	---	---	---	---	91.69	11.84	---
Totals	**4.29**	**19.12**	**22.85**	**0.04**	**92.81**	**12.84**	**3,582**

Alternative 3
No. of wind turbine generator: 105

Annual Emissions

	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2E (Imperial County)	CO2E (global)
Onroad Vehicles	0.15	1.42	0.26	0.00	0.02	0.01	209	546
Offroad Equipment	0.06	0.22	0.42	0.00	0.02	0.02	45	45
Emergency Engine	0.03	0.04	0.04	0.00	0.00	0.00	4	4
Fugitive Dust	---	---	---	---	7.13	1.13	---	---
Totals	**0.24**	**1.68**	**0.72**	**0.00**	**7.18**	**1.17**	**258**	**595**

Daily Emissions

	Emissions (lbs/day)						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2E (Imperial County)
Onroad Vehicles	1.23	10.05	5.17	0.02	0.27	0.21	1,696
Offroad Equipment	2.07	7.52	16.01	0.02	0.79	0.73	1,734
Emergency Engine	0.99	1.55	1.67	0.00	0.06	0.06	152
Fugitive Dust	---	---	---	---	87.38	10.96	---
Totals	**4.29**	**19.12**	**22.85**	**0.04**	**88.50**	**11.96**	**3,582**

Operation/Maintenance - Proposed Action

Equipment	Location	Assumptions		Trips within Imperial County: Total VMT/yr	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr	Total Trips: Total VMT/yr	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr
Employee Commute	From El Centro (E) & San Diego (W)	29 employees	39 mi/RT in Imperial County	341,640	8,760	332,880	936	18	918	998,640	8,760	989,880	2,736	18	2,718
Pickup Truck		4 trips/year	106 mi/RT	424	212	212	106	53	53	424	212	212	106	53	53
Forklift (small)	onsite		1500 hrs/yr												
Truck Crane	from San Diego (87 mi, 6 mi in Imperial)	1 trip/year		62	50	12	62	50	12	224	50	174	224	50	174
Grader (Road Equipment)	from El Centro (27 mi, 27 mi in Imperial)	as needed	680 hrs/yr												
Internal Truck Trips	onsite	1 trip/day, 2 trucks	20 mile/day	14,600	14,600	0	40	40	0	14,600	14,600	0	40	40	0

20% rideshare is assumed for employee commute.
10% road grading is assumed. Total of 6,800 hours of grader use is assumed in the construction. 10% of 6,800 hours is assumed for operational grading.
Onsite traffic and grader use is proportional to the number of WTGs.

Operation & Maintenance Emission Calculations

Annual Emissions

Onroad Emissions: SCAQMD Emission Factors for 2012
Scenario Year: 2012 -- Model Years: 1968 to 2012

	Emission Factors lbs/mile - 2012						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000796	0.007655	0.000776	0.000011	0.000090	0.000057	1.1015
Delivery	0.002238	0.015457	0.017324	0.000027	0.000650	0.000550	2.7663
Heavy-Heavy Duty	0.002528	0.010215	0.030924	0.000040	0.001496	0.001294	4.2159

	Class	Trips within Imperial County: Total Annual VMT	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Trips: Total Annual VMT	Unpaved Total VMT/yr	Paved Total VMT/yr
Employee Commute	Passenger	341,640	8,760	332,880	989,880	2,736	18
Pickup Trucks	Delivery	15,024	14,812	212	212	146	93
Cranes	HHDT	62	50	12	174	224	50

	Emissions lbs/year - 2012							
	VMT	VOC	CO	NOx	SOx	PM	PM2.5	CO2
Passenger	341,640	272.04	2,615.17	265.05	3.67	30.68	19.64	376,325
Delivery	15,024	33.62	232.23	260.28	0.40	9.76	8.26	41,561
Heavy-Heavy Duty	62	0.16	0.63	1.92	0.00	0.09	0.08	261
		305.82	2,848.03	527.25	4.07	40.53	27.98	418,147

lbs/year - 2012	
VMT	CO2 (Total)
989,880	1,090,378
212	586
174	734
	1,091,698

Offroad Equipment Emission Calculations

	HP	SCAQMD Emission Factor lbs/hour - 2012: ROG	CO	NOx	SOx	PM	CO2
Manlift	75	0.050483	0.186563	0.203388	0.000253	0.018663	20.5837
Grader	220	0.156651	0.564978	1.397880	0.001720	0.060295	152.8365

	HP	Hours/yr	Total Annual Emissions lbs - 2012: ROG	CO	NOx	SOx	PM	CO2
Manlift	75	1,500	75.73	279.84	305.08	0.38	28.00	30,876
Grader	220	680	106.52	384.19	950.56	1.17	41.00	103,929
			182.25	664.03	1255.64	1.55	69.00	134,804

Maximum Daily Operation

	Class	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr
Employee Commute	Passenger	936	18	918
Pickup Trucks	Delivery	146	93	53
Cranes	HHDT	62	50	12

	Emissions lbs/day - 2012							
	VMT	VOC	CO	NOx	SOx	PM	PM2.5	CO2
Passenger	936	0.75	7.16	0.73	0.01	0.08	0.05	1,031
Delivery	146	0.33	2.26	2.53	0.00	0.09	0.08	404
Heavy-Heavy Duty	62	0.16	0.63	1.92	0.00	0.09	0.08	261
		1.23	10.05	5.17	0.02	0.27	0.21	1,696

Offroad Equipment Emission Calculations

	HP	Hours/day	Total Daily Emissions lbs - 2012: ROG	CO	NOx	SOx	PM	CO2
Manlift	75	10	0.50	1.87	2.03	0.00	0.19	205.84
Grader	220	10	1.57	5.65	13.98	0.02	0.60	1528.37
			2.07	7.52	16.01	0.02	0.79	1,734

Operation/Maintenance - Alternative 2

				Trips within Imperial County						Total Trips					
Equipment	Location	Assumptions		Total VMT/yr	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr	Total VMT/yr	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr
Employee Commute	From El Centro (E) & San [	29 employees	39 mi/RT in Imperial County	341,640	8,760	332,880	936	18	918	998,640	8,760	989,880	2,736	18	2,718
Pickup Truck		4 trips/year	106 mi/RT	424	212	212	106	53	53	424	212	212	106	53	53
Forklift (small)	onsite		1301 hrs/yr												
Truck Crane	from San Diego (87 mi, 6 mi in Imperial)	1 trip/year		62	50	12	62	50	12	224	50	174	224	50	174
Grader (Road Equipment)	from El Centro (27 mi, 27 mi in Imperial)	as needed	590 hrs/yr												
Internal Truck Trips	onsite	1 trip/day, 2 trucks	20 mile/day	14,600	14,600	0	40	40	0	14,600	14,600	0	40	40	0

20% rideshare is assumed for employee commute.
Onsite traffic and grader use is proportional to the number of WTGs.

Operation & Maintenance Emission Calculations

Annual Emissions

Onroad Emissions: SCAQMD Emission Factors for 2012
Scenario Year: 2012 -- Model Years: 1968 to 2012

	Emission Factors lbs/mile - 2012						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000796	0.007655	0.000776	0.000011	0.000090	0.000057	1.1015
Delivery	0.002238	0.015457	0.017324	0.000027	0.000650	0.000550	2.7663
Heavy-Heavy Duty	0.002528	0.010215	0.030924	0.000040	0.001496	0.001294	4.2159

		Trips within Imperial County			Total Trips		
	Class	Total Annual VMT	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Annual VMT	Unpaved Total VMT/yr	Paved Total VMT/yr
Employee Commute	Passenger	341640	8760	332880	989,880	2,736	18
Pickup Trucks	Delivery	15,024	14,812	212	212	146	93
Cranes	HHDT	62	50	12	174	224	50

		Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM	PM2.5	CO2
Passenger	341,640	272.04	2,615.17	265.05	3.67	30.68	19.64	376,325
Delivery	15,024	33.62	232.23	260.28	0.40	9.76	8.26	41,561
Heavy-Heavy Duty	62	0.16	0.63	1.92	0.00	0.09	0.08	261
		305.82	2,848.03	527.25	4.07	40.53	27.98	418,147

lbs/year - 2012	
VMT	CO2 (global)
989,880	1,090,378
212	586
174	734
	1,091,698

Offroad Equipment Emission Calculations

		SCAQMD Emission Factor lbs/hour - 2012					
	HP	ROG	CO	NOx	SOx	PM	CO2
Manlift	75	0.050483	0.186563	0.203388	0.000253	0.018663	20.5837
Grader	220	0.156651	0.564978	1.397880	0.001720	0.060295	152.8365

			Total Annual Emissions lbs - 2012					
	HP	Hours/yr	ROG	CO	NOx	SOx	PM	CO2
Manlift	75	1,301	65.66	242.65	264.53	0.33	24.27	26,772
Grader	220	590	92.36	333.12	824.22	1.01	35.55	90,116
			158.03	575.77	1088.75	1.34	59.83	116,887

Maximum Daily Operation

	Class	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr
Employee Commute	Passenger	936	18	918
Pickup Trucks	Delivery	146	93	53
Cranes	HHDT	62	50	12

	Emissions lbs/day - 2012						
	VMT	VOC	CO	NOx	SOx	PM	PM2.5	CO2
Passenger	936	0.75	7.16	0.73	0.01	0.08	0.05	1,031
Delivery	146	0.33	2.26	2.53	0.00	0.09	0.08	404
Heavy-Heavy Duty	62	0.16	0.63	1.92	0.00	0.09	0.08	261
		1.23	10.05	5.17	0.02	0.27	0.21	1,696

Offroad Equipment Emission Calculations

			Total Daily Emissions lbs - 2012					
	HP	Hours/day	ROG	CO	NOx	SOx	PM	CO2
Manlift	75	10	0.50	1.87	2.03	0.00	0.19	205.84
Grader	220	10	1.57	5.65	13.98	0.02	0.60	1528.37
			2.07	7.52	16.01	0.02	0.79	1,734

Operation/Maintenance - Alternative 3

				Trips within Imperial County						Total Trips					
Equipment	Location	Assumptions		Total VMT/yr	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr	Total VMT/yr	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr
Employee Commute	From El Centro (E) & San I	29 employees	39 mi/RT in Imperial County	341,640	8,760	332,880	936	18	918	998,640	8,760	989,880	2,736	18	2,718
Pickup Truck		4 trips/year	106 mi/RT	424	212	212	106	53	53	424	212	212	106	53	53
Forklift (small)	onsite		997 hrs/yr												
Truck Crane	from San Diego (87 mi, 6 mi in Imperial)	1 trip/year		62	50	12	62	50	12	224	50	174	224	50	174
Grader (Road Equipment)	from El Centro (27 mi, 27 mi in Imperial)	as needed	452 hrs/yr												
Internal Truck Trips	onsite	1 trip/day, 2 trucks	20 mile/day	14,600	14,600	0	40	40	0	14,600	14,600	0	40	40	0

20% rideshare is assumed for employee commute.
Onsite traffic and grader use is proportional to the number of WTGs.

Operation & Maintenance Emission Calculations

Annual Emissions

Onroad Emissions: SCAQMD Emission Factors for 2012
Scenario Year: 2012 -- Model Years: 1968 to 2012

	Emission Factors lbs/mile - 2012						
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0.000796	0.007655	0.000776	0.000011	0.000090	0.000057	1.1015
Delivery	0.002238	0.015457	0.017324	0.000027	0.000650	0.000550	2.7663
Heavy-Heavy Duty	0.002528	0.010215	0.030924	0.000040	0.001496	0.001294	4.2159

		Trips within Imperial County			Total Trips		
	Class	Total Annual VMT	Unpaved Total VMT/yr	Paved Total VMT/yr	Total Annual VMT	Unpaved Total VMT/yr	Paved Total VMT/yr
Employee Commute	Passenger	341640	8760	332880	989,880	2,736	18
Pickup Trucks	Delivery	15,024	14,812	212	212	146	93
Cranes	HHDT	62	50	12	174	224	50

		Emissions lbs/year - 2012						
	VMT	VOC	CO	NOx	SOx	PM	PM2.5	CO2
Passenger	341,640	272.04	2,615.17	265.05	3.67	30.68	19.64	376,325
Delivery	15,024	33.62	232.23	260.28	0.40	9.76	8.26	41,561
Heavy-Heavy Duty	62	0.16	0.63	1.92	0.00	0.09	0.08	261
		305.82	2,848.03	527.25	4.07	40.53	27.98	418,147

lbs/year - 2012	
VMT	CO2 (global)
989,880	1,090,378
212	586
174	734
	1,091,698

Offroad Equipment Emission Calculations

		SCAQMD Emission Factor lbs/hour - 2012					
	HP	ROG	CO	NOx	SOx	PM	CO2
Manlift	75	0.050483	0.186563	0.203388	0.000253	0.018663	20.5837
Grader	220	0.156651	0.564978	1.397880	0.001720	0.060295	152.8365

			Total Annual Emissions lbs - 2012					
	HP	Hours/yr	ROG	CO	NOx	SOx	PM	CO2
Manlift	75	997	50.32	185.97	202.74	0.25	18.60	20,519
Grader	220	452	70.79	255.31	631.70	0.78	27.25	69,067
			121.11	441.29	834.44	1.03	45.85	89,585

Maximum Daily Operation

	Class	Total Daily VMT	Unpaved Daily VMT/yr	Paved Daily VMT/yr
Employee Commute	Passenger	936	18	918
Pickup Trucks	Delivery	146	93	53
Cranes	HHDT	62	50	12

		Emissions lbs/day - 2012						
	VMT	VOC	CO	NOx	SOx	PM	PM2.5	CO2
Passenger	936	0.75	7.16	0.73	0.01	0.08	0.05	1,031
Delivery	146	0.33	2.26	2.53	0.00	0.09	0.08	404
Heavy-Heavy Duty	62	0.16	0.63	1.92	0.00	0.09	0.08	261
		1.23	10.05	5.17	0.02	0.27	0.21	1,696

Offroad Equipment Emission Calculations

			Total Daily Emissions lbs - 2012					
	HP	Hours/day	ROG	CO	NOx	SOx	PM	CO2
Manlift	75	10	0.50	1.87	2.03	0.00	0.19	205.84
Grader	220	10	1.57	5.65	13.98	0.02	0.60	1528.37
			2.07	7.52	16.01	0.02	0.79	1,734

Fugitive Dust Emissions - Proposed Action

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Grading (AP-42 Section 11.9)

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

Emission Factor, lb/VMT

PM10	PM2.5
0.27540	0.01933

Emission Control
68%

Maximum Daily Grader VMT

	Hrs/day	VMT/day
Daily Operation	10	30

Grading Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	2.64	0.19

Annual Grader VMT

	Hrs/year	VMT/year
Annual Operation	680	2040

Grading Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	0.09	0.01

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

$E = [k \times (sL)^{0.91 \times} (W)^{1.02}]^*(1-P/4N)$
E = lb/VMT
k = Constant (0.0022 for PM10 and 0.00054 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 for 5,000<ADT<10,000 of Table 13.2.1-2)
W = Average weight of vehicles in tons (calculated below)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Daily Operation	918	3	2	922	2.1

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Annual Operation	332,880	212	12	333,104	2.0

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Daily Operation	0.00036	0.00009

Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	0.33	0.08

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
Annual Operation	0.0003	0.0001

Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	0.06	0.01

Fugitive Dust Emissions - Proposed Action

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Daily Operation	18	93	50	161	14.2

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Annual Operation	8,760	14,812	50	23,622	5.8

Uncontrolled Emission Factors and Emissions

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Daily Operation	3.91	0.39

Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	629.01	62.90

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
Annual Operation	2.62	0.26

Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	30.93	3.09

Controlled Emissions (assumes 90% soil binder)

Emission Control
90%

Emissions lbs/day

	PM10	PM2.5
Daily Operation	62.90	6.29

Emissions tons/year

	PM10	PM2.5
Annual Operation	3.09	0.31

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area
Disturbed areas are controlled by soil stabilizer suppressing 84% control
Restoration of disturbed acres creates no net emission increase of permanently disturbed acres

Disturbed Acres (acre-years)

Permanent	171.60

Emissions (tons/year)

PM10	PM2.5
5.20	1.06

Emissions (lbs/day)

PM10	PM2.5
28.47	5.83

Fugitive Dust Emissions - Proposed Action

Fugitive Dust Emissions Summary

Fugitive Dust Emission Totals (lbs/day)

	2011	
	PM10 lbs/day	PM2.5 lbs/day
Grading	2.64	0.19
Paved Road Dust	0.33	0.08
Unpaved Road Dust	62.90	6.29
Disturbed Area Dust	28.47	5.83
Totals	94.34	12.39

Fugitive Dust Emission Totals (tons/year)

	2011	
	PM10 t/yr	PM2.5 t/yr
Grading	0.09	0.01
Paved Road Dust	0.06	0.01
Unpaved Road Dust	3.09	0.31
Disturbed Area Dust	5.20	1.06
Totals	8.44	1.39

Fugitive Dust Emissions - Alternative 2

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Grading (AP-42 Section 11.9)

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

Emission Factor, lb/VMT

PM10	PM2.5
0.27540	0.01933

Emission Control
68%

Maximum Daily Grader VMT

	Hrs/day	VMT/day
Daily Operation	10	30

Grading Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	2.64	0.19

Annual Grader VMT

	Hrs/year	VMT/year
Annual Operation	590	1,769

Grading Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	0.08	0.01

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

$E = [k \times (sL)^{0.91} \times (W)^{1.02}] * (1-P/4N)$
E = lb/VMT
k = Constant (0.0022 for PM10 and 0.00054 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 for 5,000<ADT<10,000 of Table 13.2.1-2)
W = Average weight of vehicles in tons (calculated below)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Daily Operation	918	3	2	922	2.1

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Annual Operation	332,880	212	12	333,104	2.0

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Daily Operation	0.00036	0.00009

Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	0.33	0.08

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
Annual Operation	0.0003	0.0001

Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	0.06	0.01

Fugitive Dust Emissions - Alternative 2

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
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Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Daily Operation	18	93	50	161	14.2

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Annual Operation	8,760	14,812	50	23,622	5.8

Uncontrolled Emission Factors and Emissions

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Daily Operation	3.91	0.39

Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	629.01	62.90

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
Annual Operation	2.62	0.26

Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	30.93	3.09

Controlled Emissions (assumes 90% soil binder)

Emission Control
90%

Emissions lbs/day

	PM10	PM2.5
Daily Operation	62.90	6.29

Emissions tons/year

	PM10	PM2.5
Annual Operation	3.09	0.31

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area
Disturbed areas are controlled by soil stabilizer suppressing 84% control
Restoration of disturbed acres creates no net emission increase of permanently disturbed acres

Disturbed Acres (acre-years)

Permanent	155.60

Emissions (tons/year)

PM10	PM2.5
4.71	0.96

Emissions (lbs/day)

PM10	PM2.5
25.82	5.29

Fugitive Dust Emissions - Alternative 2

Fugitive Dust Emissions Summary

Fugitive Dust Emission Totals (lbs/day)

	2011	
	PM10 lbs/day	PM2.5 lbs/day
Grading	2.64	0.19
Paved Road Dust	0.33	0.08
Unpaved Road Dust	62.90	6.29
Disturbed Area Dust	25.82	5.29
Totals	91.69	11.84

Fugitive Dust Emission Totals (tons/year)

	2011	
	PM10 t/yr	PM2.5 t/yr
Grading	0.08	0.01
Paved Road Dust	0.06	0.01
Unpaved Road Dust	3.09	0.31
Disturbed Area Dust	4.71	0.96
Totals	7.94	1.29

Fugitive Dust Emissions - Alternative 3

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Grading (AP-42 Section 11.9)

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

Emission Factor, lb/VMT

PM10	PM2.5
0.27540	0.01933

Emission Control
68%

Maximum Daily Grader VMT

	Hrs/day	VMT/day
Daily Operation	10	30

Grading Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	2.64	0.19

Annual Grader VMT

	Hrs/year	VMT/year
Annual Operation	452	1355.70

Grading Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	0.06	0.00

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

$E = [k \times (sL)^{0.91 \times} (W)^{1.02}] * (1-P/4N)$
E = lb/VMT
k = Constant (0.0022 for PM10 and 0.00054 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 for 5,000<ADT<10,000 of Table 13.2.1-2)
W = Average weight of vehicles in tons (calculated below)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Daily Operation	918	3	2	922	2.1

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
Annual Operation	332,880	212	12	333,104	2.0

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Daily Operation	0.00036	0.00009

Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	0.33	0.08

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
Annual Operation	0.0003	0.0001

Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	0.06	0.01

Fugitive Dust Emissions - Alternative 3

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Daily Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Daily Operation	18	93	50	161	14.2

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
Annual Operation	8,760	14,812	50	23,622	5.8

Uncontrolled Emission Factors and Emissions

Daily Emission Factors (lb/VMT)

	PM10 Daily	PM2.5 Daily
Daily Operation	3.91	0.39

Emissions (Lbs/day)

	PM10	PM2.5
Daily Operation	629.01	62.90

Annual Emission Factors (lb/VMT)

	PM10 Annual	PM2.5 Annual
Annual Operation	2.62	0.26

Emissions (Tons/year)

	PM10	PM2.5
Annual Operation	30.93	3.09

Controlled Emissions (assumes 90% soil binder)

Emission Control
90%

Emissions lbs/day

	PM10	PM2.5
Daily Operation	62.90	6.29

Emissions tons/year

	PM10	PM2.5
Annual Operation	3.09	0.31

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area
Disturbed areas are controlled by soil stabilizer suppressing 84% control
Restoration of disturbed acres creates no net emission increase of permanently disturbed acres

Disturbed Acres (acre-years)

Permanent	129.60

Emissions (tons/year)

PM10	PM2.5
3.92	0.80

Emissions (lbs/day)

PM10	PM2.5
21.50	4.40

Fugitive Dust Emissions - Alternative 3

Fugitive Dust Emissions Summary

Fugitive Dust Emission Totals (lbs/day)

	2011	
	PM10 lbs/day	PM2.5 lbs/day
Grading	2.64	0.19
Paved Road Dust	0.33	0.08
Unpaved Road Dust	62.90	6.29
Disturbed Area Dust	21.50	4.40
Totals	87.38	10.96

Fugitive Dust Emission Totals (tons/year)

	2011	
	PM10 t/yr	PM2.5 t/yr
Grading	0.06	0.00
Paved Road Dust	0.06	0.01
Unpaved Road Dust	3.09	0.31
Disturbed Area Dust	3.92	0.80
Totals	7.13	1.13

Operation & Maintenance

Emergency Generator Emissions

SCAQMD General Instruction Book for the AQMD 2007-2008 Six-Month Transitional Emissions Reporting Program
http://www.ecotek.com/aqmd/2007/forms_and_instructions_pdf/0708_GuideBook.pdf

Fuel Type (fuel unit)	VOC (lb/1,000 gal)	CO (lb/1,000 gal)	NOx (lb/1,000 gal)	SOx (lb/1,000 gal)	PM (lb/1,000 gal)
LPG, Propane, Butane, All ICEs & Micro Turbine	83	129	139	0.35	5

Siemens Standby Generator Owner's Manual (80kW Models)
http://www.sea.siemens.com/us/internet-dms/btlv/Residential/Residential/docs_Generators/80_kw_generators.pdf
http://www.sea.siemens.com/us/internet-dms/btlv/Residential/Residential/docs_Generators/80_kW_Generator_Owners_Manual_0G2906.pdf

Fuel Consumption Rate - 75 kW	Propane (gal/hr.)
100% of rated load	11.98

Note: Fuel consumption rate is lineraly interpolated from 80 kW to 75 kW.

Attachment A. Second 15-Day Modified Regulatory Language for Public Comment - Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

Propane Combustion - CO2 Emissions (kg CO2/gallon)	5.74
Propane Combustion - CH4 Emissions (g CH4/MMBtu)	1
Propane Combustion - N2O Emissions (g N2O/MMBtu)	0.1

Heating Value of Propane

91,500 Btu/gallon

Ocotillo Emergency Generator Emissions

Daily Operation: non-emergency purpose (hour)	1
Daily Fuel Consumption Based on 100% Load (gallons/day)	11.98
Annual Operation: non-emergency purpose (hour)	52
Annual Fuel Consumption Based on 100% Load (gallons/year)	623.03

	VOC	CO	NOx	SOx	PM
Daily Emissions (lbs)	0.99	1.55	1.67	0.00	0.06
Annual Emissions (lbs)	51.71	80.37	86.60	0.22	3.12
Annual Emissions (tons)	0.03	0.04	0.04	0.00	0.00

	CO2	CH4	N2O	CO2E
Daily Emissions (lbs)	151.61	0.00242	0.00024	151.74
Annual Emissions (lbs)	7,883.96	0.12568	0.01257	7,890.49
Annual Emissions (MT)	3.58	5.70E-05	5.70E-06	3.58

Operation & Maintenance

SF6 Leakage

4 x 500 kV dead tank circuit breakers
Mitsubishi500-SFMT-50E and 63E has approximately 1,300 lbs of SF6.
Total SF6 = 5,200 lbs

Annual leakage rate, 0.1%		
Annual SF6 leakage:	0.002359	MT
Global Warming Potential of SF6:	23900	
COeE from SF6 leakage:	56.37	MT CO2e

Appendix H
Traffic Impact Analysis

Appendix H

Traffic Impact Analysis

Appendix H

Traffic Impact Analysis

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

OCOTILLO WIND ENERGY FACILITY

County of Imperial, California
June 17, 2011

LLG Ref. 3-10-1956

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TRAFFIC IMPACT ANALYSIS

OCOTILLO WIND ENERGY FACILITY

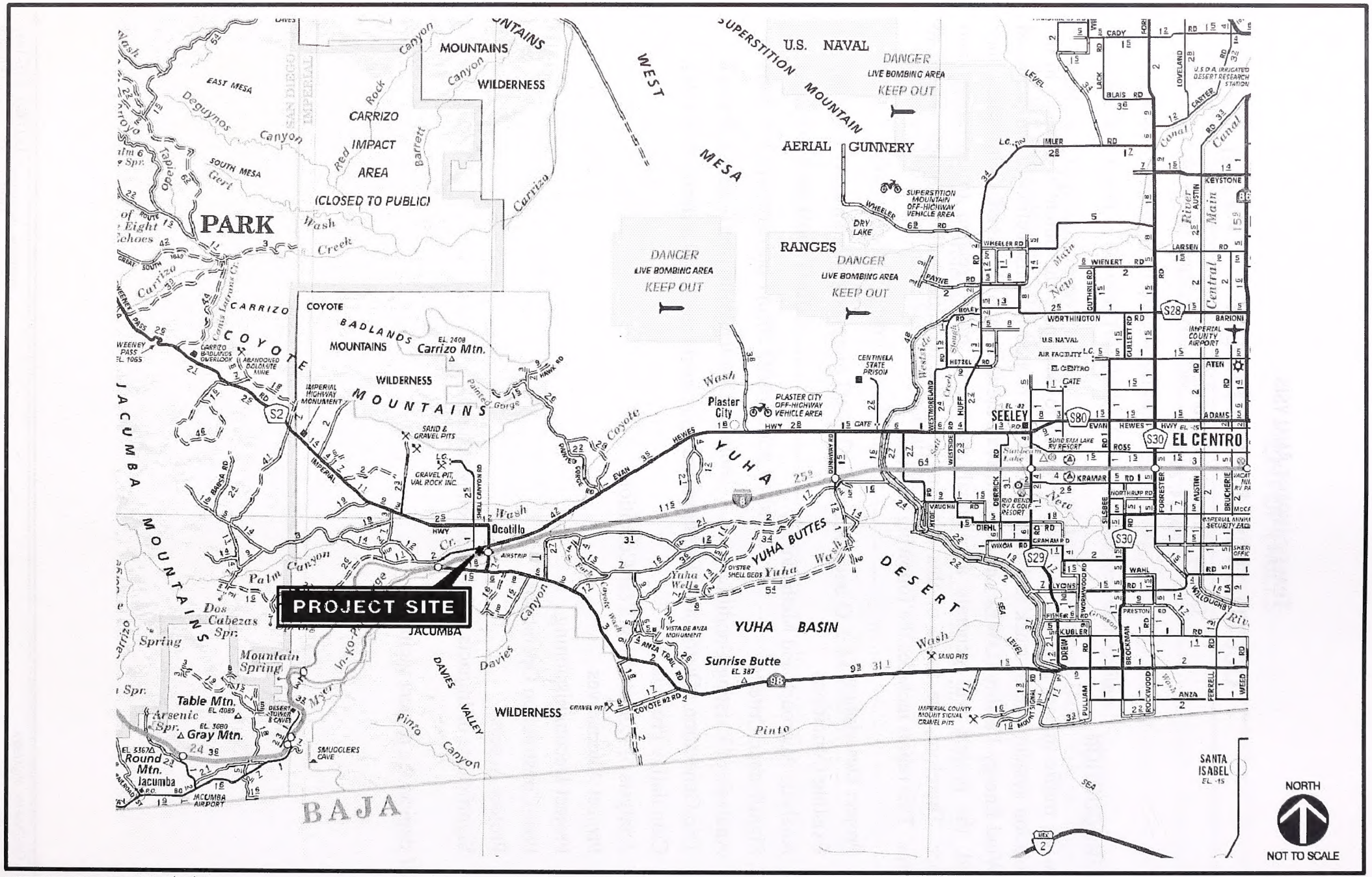
County of Imperial, California
May 24, 2011

1.0 INTRODUCTION

The following traffic impact analysis has been prepared to determine the potential impacts to the local circulation system due to truck and employee traffic related to construction of the proposed Ocotillo Wind Energy Facility (OWEF) near Ocotillo, in the County of Imperial, California. Once constructed, the project will generate a minimal amount of traffic related to operations and maintenance. Therefore, the focus of this analysis is on the potential traffic impacts related to construction. This report includes the following sections:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Significance Criteria
- Analysis of Existing Condition
- Trip Generation / Distribution / Assignment
- Cumulative Projects
- Analysis of Construction Year Conditions
- Project Alternatives
- Project Decommissioning
- Post-Construction Operations
- Project Access
- Significance of Impacts and Mitigation Measures

Figure 1-1 depicts the project vicinity.



REV. 3/10/11
N:/1956/Figures/LLG1956 FIG 1-1

Figure 1-1

Vicinity Map

2.0 PROJECT DESCRIPTION

2.1 Alternative 1 (Proposed Project): 158 Wind Turbine Generators

Ocotillo Express LLC (Applicant) proposes to construct, operate, maintain, and decommission the proposed Ocotillo Wind Energy Facility (OWEF), a 474-Megawatt (MW) wind energy facility on approximately 12,028 acres in Imperial County, California. The majority of the project site is located on BLM-administered land except approximately 26 acres of private land where a single wind turbine generator would be installed. Additionally, 487 acres of private land would be utilized for road access and collection line ROWs.

The proposed OWEF would be constructed in two phases. A proposed total of 158 Wind Turbine Generators (WTGs) would be located on the project site, designed to produce up to 474 MW of energy. Phase I is anticipated to total approximately 315 MW, with the installation of up to 137 WTGs using turbines ranging from 1.6 to 3 MW in generating capacity. Phase II would include the construction of 21 WTGs (also ranging from 1.6 to 3 MW in capacity) generating up to 159 MW and would likely be built in the year immediately following completion of Phase I.

Facilities for the proposed OWEF would consist of wind turbine generators, meteorological towers, an electrical collection system for collecting the power generated by each WTG, an electrical substation, access roads, and an operation and maintenance building. The proposed OWEF would connect to the new San Diego Gas & Electric Sunrise Powerlink 500-kV transmission line.

Construction of each of the two phases of the wind generation facility is anticipated to be completed over a period of 12 to 15 months. Phase I is expected to commence in the 3rd quarter of 2011 with completion in the 4th quarter of 2012. Phase II is anticipated to follow in 2013.

2.2 Alternative 2: 137 Wind Turbine Generators

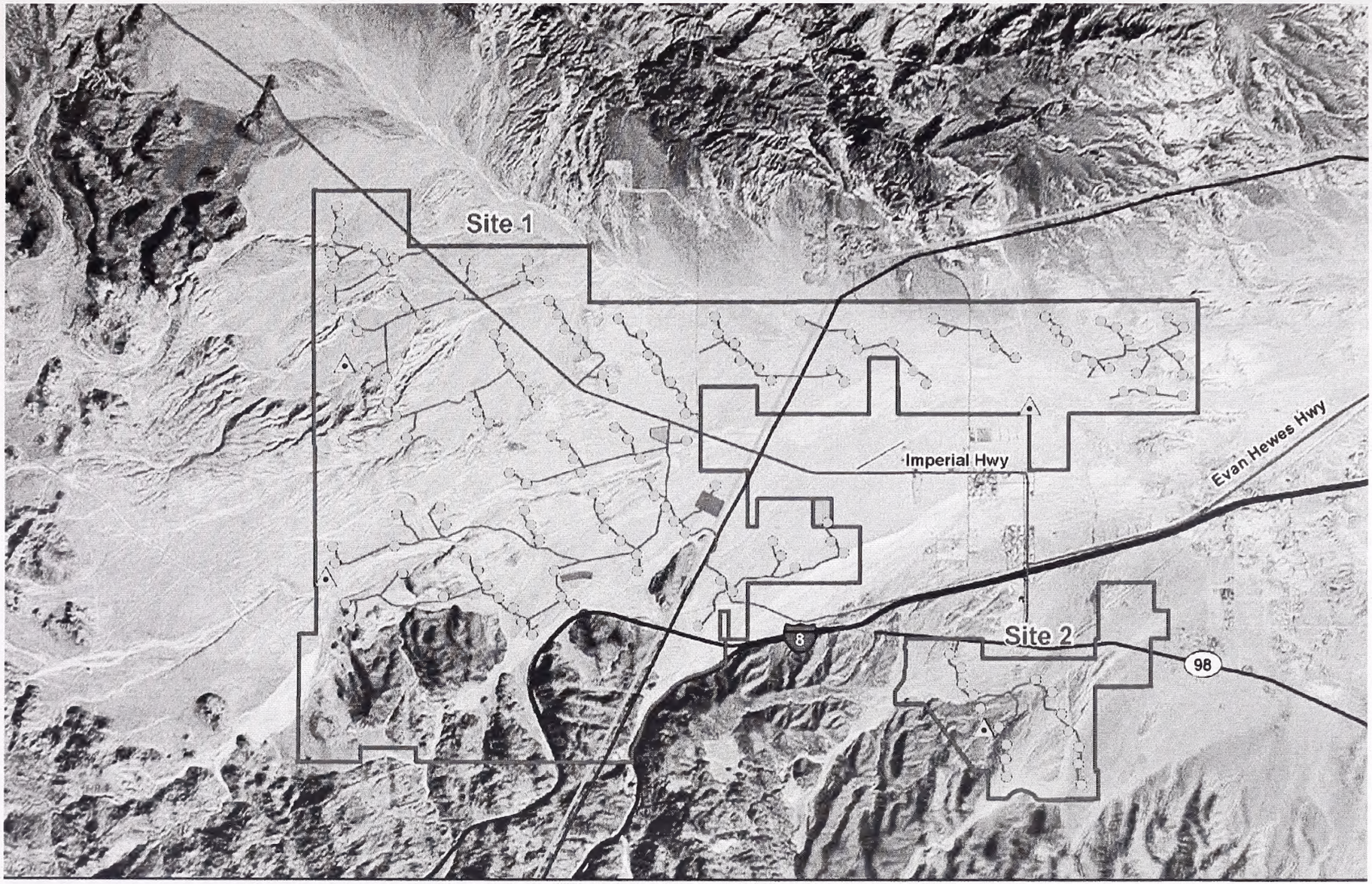
This alternative is conceptually similar to the Proposed Action (Alternative 1), but with 21 fewer WTGs (137 total), 7 of which are optional sites; all are associated with Phase 2 of the Proposed Action. ***Figure 2-2*** depicts the site plan for Alternative 2. Compared to the Proposed Action, the turbines eliminated under this alternative include 4 in the southern portion of Site 2 and northeast portion of Site 1 (5, 4 optional), and several along the perimeter of the project in the northwest portion of Site 1 (12, 3 optional). The locations of the substation, switchyard, O&M facility, batch plant, rail yard, and meteorological towers are the same as the Proposed Action. Wind turbines have been eliminated to avoid sensitive cultural and biological resources, particularly in the southwestern portion of the site.

Construction of Alternative 2 would utilize the same equipment and materials as the Proposed Action (Alternative 1); however, less material would be required due to the reduction in the number of WTGs. Since the WTGs to be eliminated are all associated with Phase 2, construction of this alternative would be completed in a single phase lasting from 12 to 15 months. Land disturbance would be reduced as 21 fewer turbine foundations/crane pads would be required.

2.3 Alternative 3: 105 Wind Turbine Generators

This alternative is conceptually similar to the Proposed Action (Alternative 1), but with 53 fewer WTGs (105 total). ***Figure 2-3*** depicts the site plan for Alternative 3. Compared to the Proposed Action, the turbines eliminated under this alternative include all those at Site 2 (16), all those in the northeast portion of Site 1 (22), a couple near and the one on the private parcel (3), and several along the perimeter of the project in the northeast portion of Site 1 (12). In addition, the meteorological tower on Site 2 would be eliminated. The locations of the substation, switchyard, O&M facility, batch plant, rail yard, and remaining meteorological towers are the same as the Proposed Action.

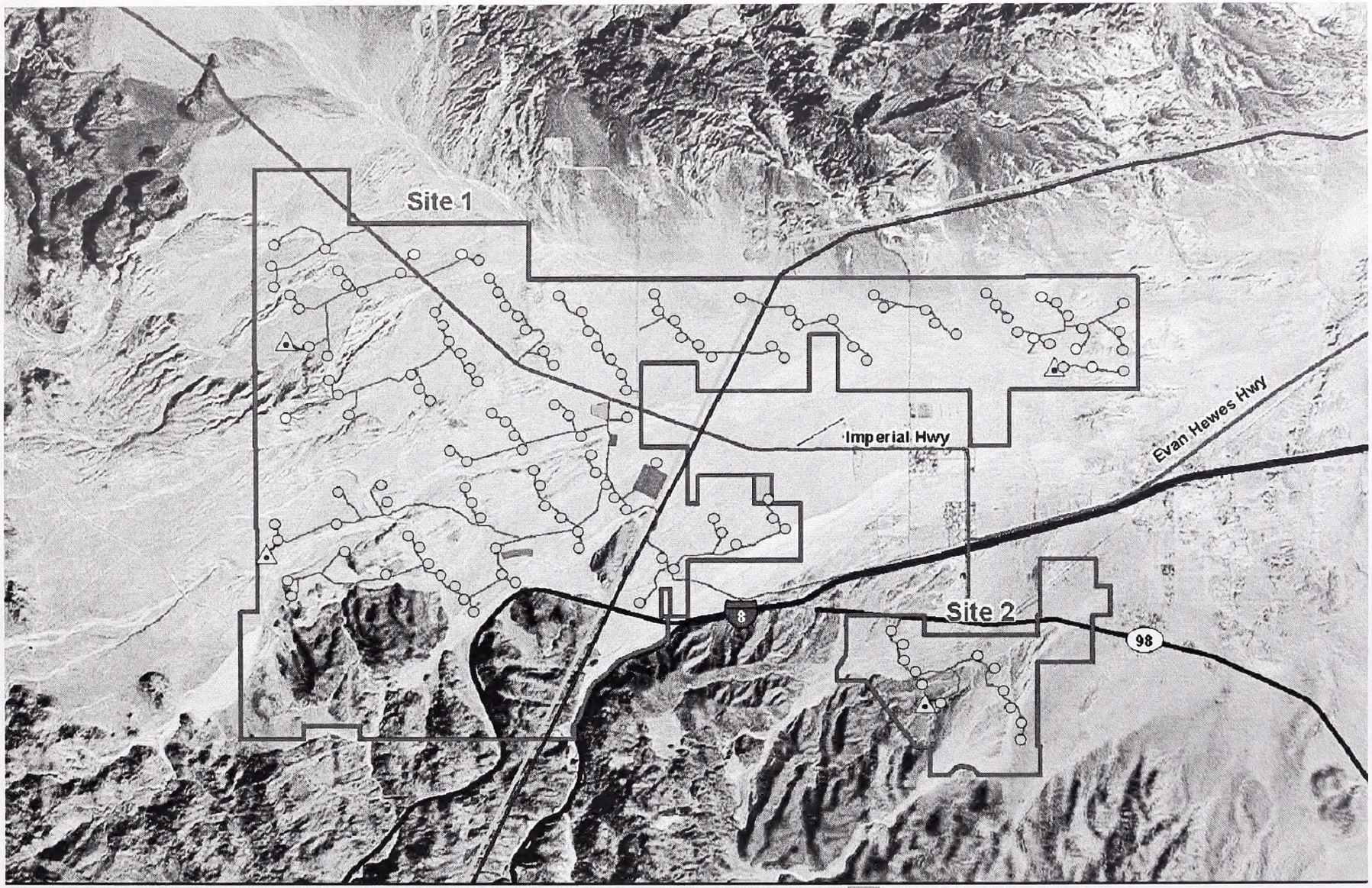
Construction of Alternative 3 would utilize the same equipment and materials as the Proposed Action (Alternative 1); however, less material would be required due to the reduction in the number of WTGs. Since all the WTGs to be eliminated are associated with Phase 2, as well as some from Phase 1, construction of this alternative would be completed in a single phase lasting from 12 to 15 months. Land disturbance would be reduced as 21 fewer turbine foundations/crane pads would be required.



REV. 3/10/11
N:/1956/Figures/LLG1956 FIG 2-1

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Figure 2-1
Site Plan

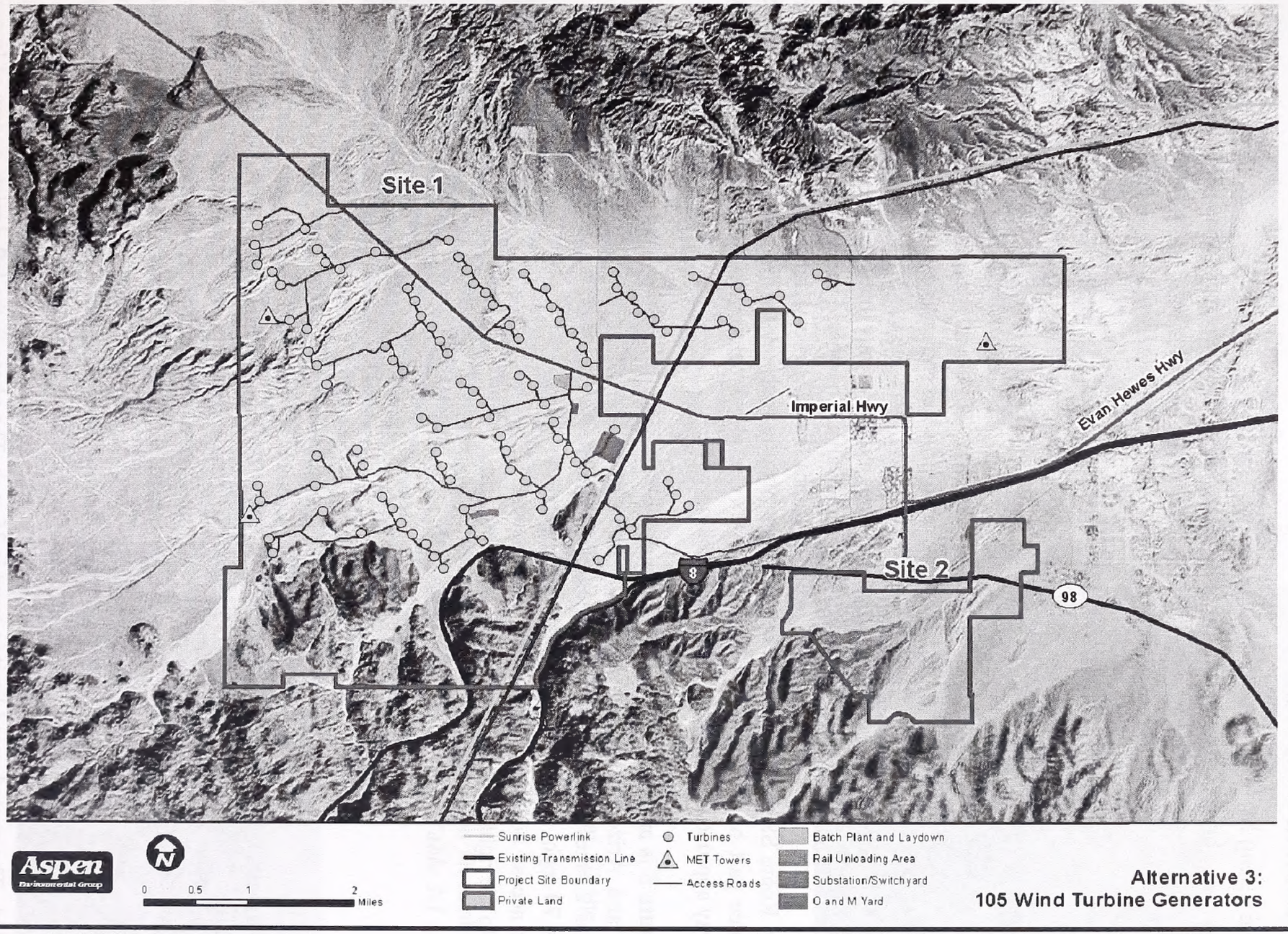


REV. 3/10/11
N:/1956/Figures/LLG1956 FIG 2-2

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Figure 2-2

Alternative 2 Site Plan



REV. 3/10/11
N:/1956/Figures/LLG1956 FIG 2-3

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Figure 2-3

Alternative 3 Site Plan

3.0 EXISTING CONDITIONS

3.1 Existing Street Network

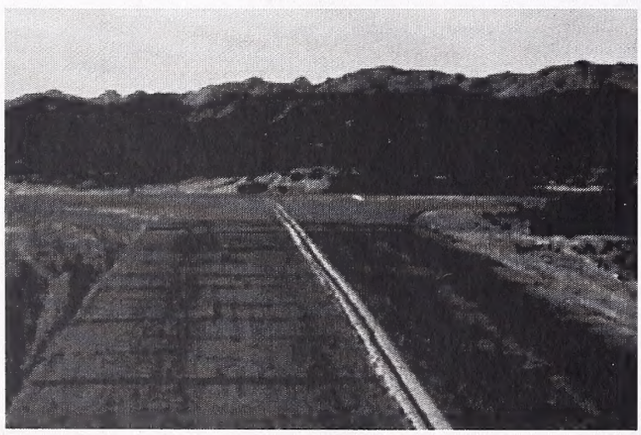
Following is a brief description of the street segments within the project area. ***Figure 3-1*** illustrates the existing conditions, including the lane geometry, for the key public street segments and intersections in the study area.



Evan Hewes Highway is an east-west road that parallels I-8 to the north. The road begins east of the City of Holtville at a junction at I-8 and travels through El Centro and Seeley before ending in Ocotillo. This road is typically used for local travel and provides an alternative to I-8. In the project vicinity, Evan Hewes Highway is 2 lanes wide and does not have any bicycle lanes or curb / gutter / sidewalks. The posted speed limit is 55 miles per hour (mph). Evan Hewes Highway is also called Imperial County Route S80 and has been classified as a historic highway by the State of California since it was once part of United States Highway 80. The photo above depicts a view of Evan Hewes Highway approaching Imperial Highway, looking west.

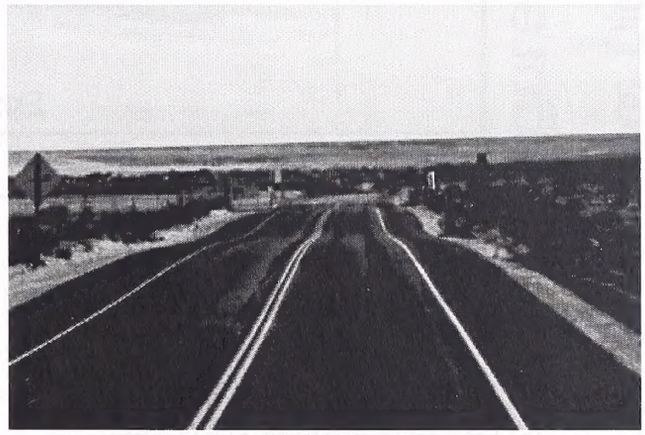
Interstate 8 is an interregional freeway between San Diego and Arizona. Through Imperial County, I-8 provides 2 lanes in each direction. The posted speed limit is 70 mph. Imperial Highway interchange is the closest access between I-8 and the project site. The photo to the right eastbound Interstate 8 looking east.





Imperial Highway (Co Hwy S2) is classified as a County Highway on the Imperial County General Plan Circulation Element. In the project vicinity, Imperial Highway is constructed as a two-lane undivided north-south roadway, providing one lane of travel per direction north of SR 98 and through the Town of Ocotillo. North of the Town of Ocotillo, this facility turns west and nearly bisects the project site. No bike lanes or bus stops are provided. There are no curb, gutters or sidewalks, only dirt shoulders are provided. The posted speed limit in town is 35 mph. The photo to the left depicts a view of Imperial Highway at SR 98 (Yuha Cutoff), looking south.

SR 98 (Yuha Cutoff) is classified as a County Highway on the Imperial County General Plan Circulation Element. In the project vicinity, SR 98 is constructed as a two-lane undivided east-west roadway, providing one lane of travel per direction. No bike lanes or bus stops are provided. There are no curb, gutters or sidewalks, but paved shoulders are provided. The posted speed limit on SR 98 is 65 mph. The photo to the right depicts a view of SR 98 (Yuha Cutoff) approaching Imperial Highway, looking east.



3.2 Existing Traffic Volumes

3.2.1 *Peak Hour Intersection Turning Movement Volumes*

LLG engineers commissioned AM and PM peak hour intersection turning movement volume counts on December 7, 2010 at the following locations:

- West Evan Hewes Highway / Imperial Highway
- I-8 WB Ramps / Imperial Highway
- I-8 EB Ramps / Imperial Highway
- SR 98 (Yuha Cutoff) / Imperial Highway

Figure 3-2 depicts the peak hour intersection turning movement volumes at all the study area intersections.

3.2.2 Segment Volumes

Daily traffic (ADT) volume counts were commissioned by LLG Engineers in on December 7, 2010. *Figure 3-2* depicts the segment ADT volumes at all the study area segments. ***Table 3-1*** summarizes the segment ADT volumes on all the study area segments.

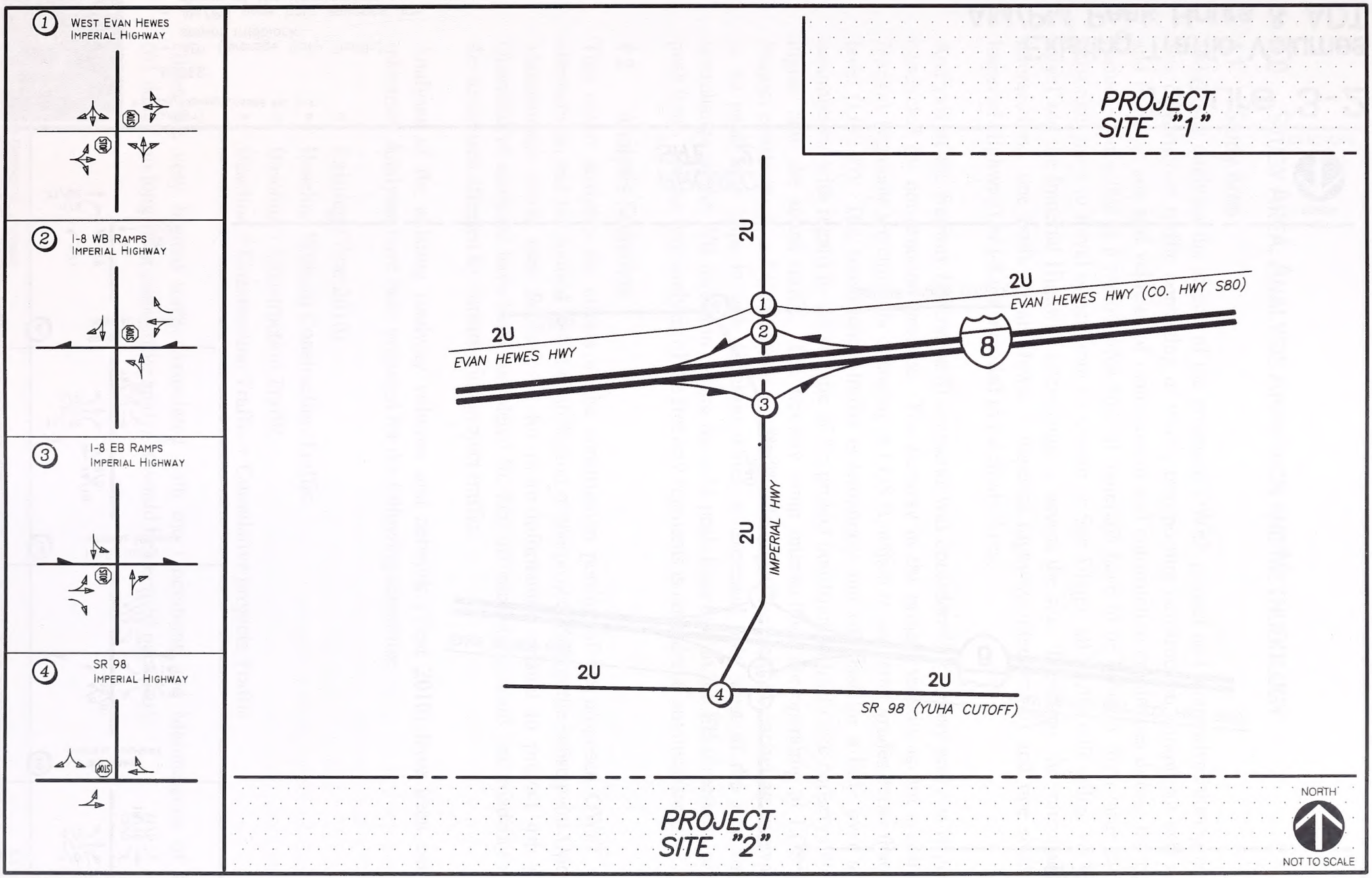
Appendix A contains the manual count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	Source	Date	ADT [a]
W. Evan Hewes Highway			
East of Imperial Highway	LLG	December 7, 2010	250
Imperial Highway			
I-8 EB Ramps to SR-98 Yuha Cutoff	LLG	December 7, 2010	240
SR-98 Yuha Cutoff			
West of Imperial Highway	LLG	December 7, 2010	1,140

Footnotes

a. Average Daily Traffic Volume.



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N:/1956/Figures/LLG1956 FIG 3-1

LEGEND

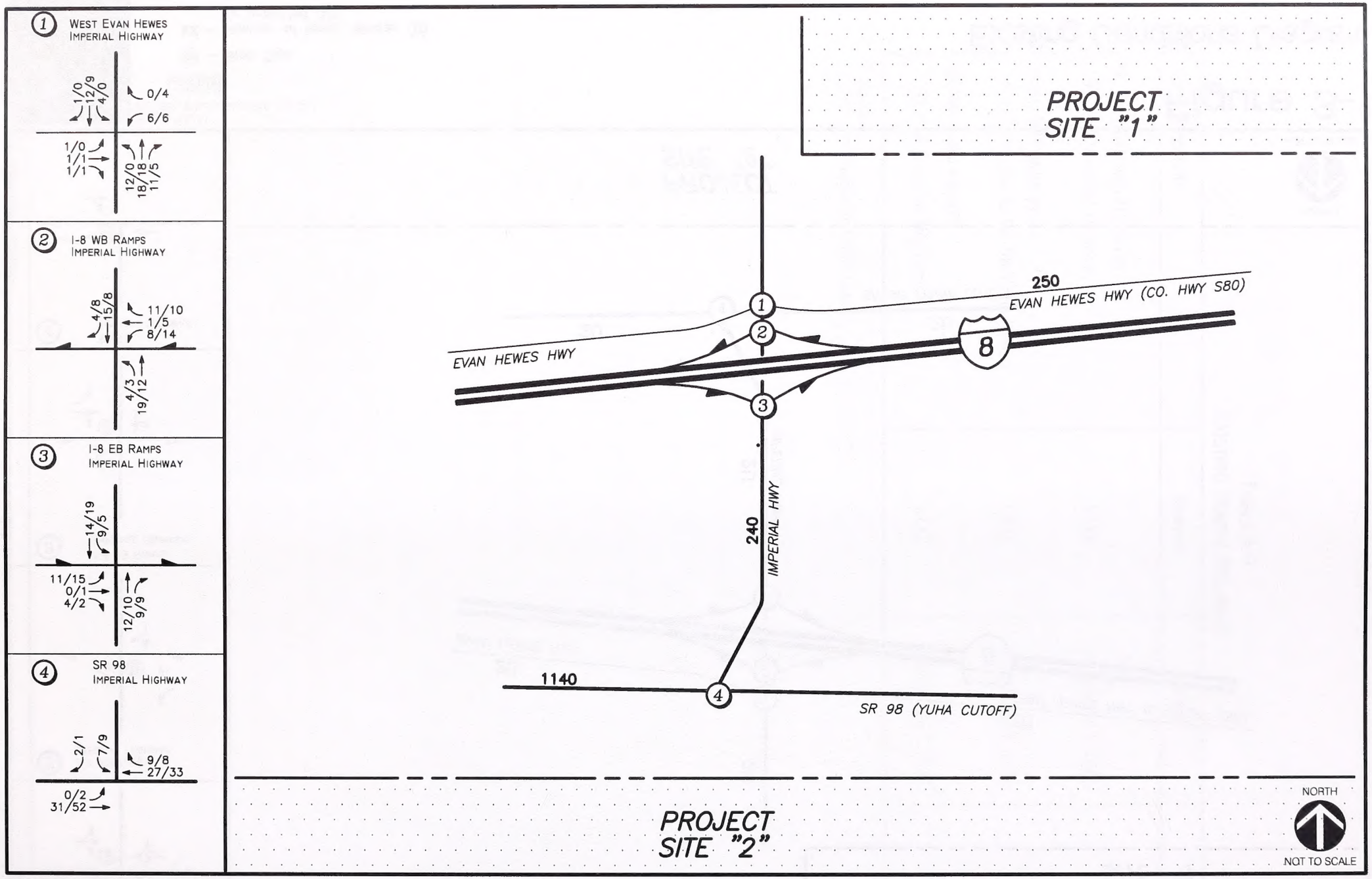
STOP – Stop Sign

XX – Number of lanes, divided (D) or undivided (U)

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Figure 3-1

Existing Conditions Diagram



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REV. 3/16/11
N:/1956/Figures/LLG1956 FIG 3-2

NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 3-2

Existing Traffic Volumes AM/PM Peak Hours & ADT

OCOTILLO WIND ENERGY FACILITY

4.0 STUDY AREA, ANALYSIS APPROACH AND METHODOLOGY

4.1 Study Area

This study analyzes the effects of the proposed OWEF project and alternatives during construction. The construction traffic consisting of trucks transporting construction equipment and materials to and from the site and vehicles of management and construction employees during the construction period. Since this is a remote area and all materials have to be brought from large distances and personnel have to travel either from El Centro or San Diego, all traffic will utilize I-8 for regional travel and the Imperial Highway interchange to access the site. Therefore, the interchange and two intersections, one north (Evan Hewes / Imperial highway intersection) and one south (SR 98 / Imperial Highway) of I-8 are included in the Study Area.

Analysis of the freeway (Interstate 8) segments was considered. Freeway analysis is generally not conducted for construction projects. The freeway in the project vicinity is not constrained. The freeway segments are currently operating at LOS B, which is two letter grades better than acceptable level (LOS D). The construction traffic is temporary and will last for a little over a year. The assumptions with regard to the volume of the project construction traffic are conservative and much higher than the actual traffic. The freeway ramp intersections are operating at LOS B with the Project construction and Cumulative projects traffic. The threshold for including freeway segments is 50 peak hour trips in one direction which is exceeded only west of the Imperial Highway interchange in the WB direction during the AM peak hour and in the EB direction during the PM peak hour. Hence, any analysis of the freeway segments is considered not necessary.

4.2 Analysis Scenarios

This report analyzes the effects of the construction portion of the proposed OWEF project and alternatives, and the limited traffic contribution of the project during the subsequent Operations and Maintenance phase (see *Section 7.0* for more information related to project trip generation). Quantitative analyses have been completed for key off-site intersections and roadway segments in the study area affected by construction project traffic.

Analyses of the existing roadway volumes and network (Year 2010) have been completed for reference. Analyses have been prepared for the following scenarios:

- Existing (Year 2010)
- Baseline Without Construction Traffic
- Baseline + Construction Traffic
- Baseline + Construction Traffic + Cumulative projects Traffic

Given the very limited traffic associated with the Operations and Maintenance of the project (61 ADT), no long-term cumulative analyses would be deemed necessary.

4.3 Analysis Methodology

The operations of the project area intersections and segments are characterized using the concept of "Level of Service" (LOS). LOS is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A through F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

Table 4–1 summaries the description for each level of service.

4.3.1 *Unsignalized Intersections*

For unsignalized intersections, level of service is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. ***Table 4–2*** depicts the criteria, which are based on the Average control delay for any particular minor movement.

Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits.

LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

4.3.2 *Street Segments*

Street segments were analyzed based upon the comparison of ADT to the County of Imperial *Roadway Classifications, Levels of Service (LOS) and Average Daily Traffic (ADT)* table (see ***Table 4-3*** below). *Table 4-3* provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. Segment analysis is a comparison of ADT volumes and an approximate daily capacity on the subject roadway.

TABLE 4-1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

TABLE 4–2
LEVEL OF SERVICE THRESHOLDS FOR UNSIGNALIZED INTERSECTIONS

Average Control Delay Per Vehicle (Seconds/Vehicle)	Level of Service	Expected Delay to Minor Street Traffic
0.0 ≤ 10.0	A	Little or no delay
10.1 to 15.0	B	Short traffic delays
15.1 to 25.0	C	Average traffic delays
25.1 to 35.0	D	Long traffic delays
35.1 to 50.0	E	Very long traffic delays
≥ 50.0	F	Severe congestion

TABLE 4–3
IMPERIAL COUNTY STANDARD STREET CLASSIFICATION AVERAGE DAILY VEHICLE TRIPS

Road		Level of Service W/Average Daily Vehicle Trips				
Class	X-Section	A	B	C	D	E
Expressway	128 / 210	30,000	42,000	60,000	70,000	80,000
Prime Arterial	106 / 136	22,200	37,000	44,600	50,000	57,000
Minor Arterial	82 / 102	14,800	24,700	29,600	33,400	37,000
Collector	64 / 84	13,700	22,800	27,400	30,800	34,200
Local Collector	40 / 70	1,900	4,100	7,100	10,900	16,200
Residential Street	40 / 60	*	*	< 1,500	*	*
Residential Cul-de-Sac / Loop Street	40/60	*	*	< 1,500	*	*
Industrial Collector	76 / 96	5,000	10,000	14,000	17,000	20,000
Industrial Local Street	44 / 64	2,500	5,000	7,000	8,500	10,000

* Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

5.0 SIGNIFICANCE CRITERIA

5.1 County of Imperial

The significance criteria summarized in ***Table 5–1*** is based upon the County of Imperial's goal for intersections and roadway segments to operate at LOS C or better. A cumulative impact can occur if the intersection or segment level of service is already operating below County standards and the project increases the delay by more than 2 seconds or the v/c ratio by more than 0.02.

TABLE 5-1
SIGNIFICANCE CRITERIA

Intersections			
Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
LOS [a] C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	—	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	—	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	—	Direct
Any LOS	Project does not degrade LOS and adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
Segments			
Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and v/c [b] > 0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	—	Direct [c]
LOS D	LOS D and v/c > 0.02	—	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and v/c [c] increases by > 0.09	—	Direct
Any LOS	LOS E or worse and v/c 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c < 0.02	Any LOS	None

Source: Linscott, Law & Greenspan, Engineers

Footnotes:

a. Level of Service
b. Volume to Capacity Ratio
c. Exception: post-project segment operation is LOS D and intersections along segment are LOS D or better results in no significant impact.

The desirable operation for freeway mainline segments is LOS D or better. Should the mainline level of service degrade to LOS E or F with the addition of project traffic, and increase the volume to capacity ratio (v/c) by more than 0.01, the impact is considered to be direct and significant. An impact is considered cumulative if the mainline is already operating at LOS E or F and the v/c increase is greater than 0.01.

5.2 Caltrans

A project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a defined threshold. The defined thresholds for roadway segments and intersections are defined in ***Table 5–1*** below. If the project exceeds the thresholds in *Table 5–1*, then the project may be considered to have a significant project impact. A feasible mitigation measure will need to be identified to return the impact within the thresholds (pre-project + allowable increase) or the impact will be considered significant and unmitigated.

TABLE 5–1
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project [a]	Allowable Increase Due to Project Impacts [b]					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
D, E & F (*or ramp meter delays above 15 minutes*)	0.01	1	0.02	1	2	2[c]

Footnotes:

a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

b. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note a above), or if the project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.

General Notes:

1. V/C = Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
4. LOS = Level of Service

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Levels of Service

The project study area is located in a rural setting and all intersections are unsignalized. As seen in ***Table 6–1,*** all study area intersections are calculated to currently operate at LOS A during both the AM and PM peak hours.

Appendix B contains the *Existing* peak hour intersection analysis worksheets.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
1. West Evan Hewes Highway / Imperial Highway	MSSC [c]	AM	9.0	A
		PM	8.8	A
2. I-8 WB Ramps / Imperial Highway	MSSC	AM	8.6	A
		PM	8.7	A
3. I-8 EB Ramps / Imperial Highway	MSSC	AM	8.7	A
		PM	8.8	A
4. SR 98 (Yuha Cutoff) / Imperial Highway	MSSC	AM	8.8	A
		PM	9.0	A

Footnotes:

a. Delay per vehicle in seconds
b. LOS - Level of service
c. MSSC - Minor street STOP Controlled intersection. Minor street left-turn delay is reported.

UNSIGNALIZED	
Delay	LOS
0.0 < 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
> 50.1	F

6.2 Daily Street Segment Levels of Service

As described above, the project study area is located in a rural setting and all segments are two-lane facilities. As seen in ***Table 6–2***, all study area segments are calculated to currently operate at LOS B or better.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Functional Roadway Classification [a]	Capacity (LOS E) [b]	ADT [c]	V/C [d]	LOS [e]
W. Evan Hewes Highway					
East of Imperial Highway	2-Lane Collector	16,200	250	0.015	A
Imperial Highway					
I-8 EB Ramps to SR-98 Yuha Cutoff	2-Lane Collector	16,200	240	0.015	A
SR-98 Yuha Cutoff					
West of Imperial Highway	2-Lane Collector	16,200	1,140	0.070	A

Footnotes:

a. County of Imperial Valley roadway classification
b. Roadway capacity corresponding to Level of Service E from Imperial County Standard Street Classification, Average Daily Vehicle Trips table.
c. Average Daily Traffic volumes
d. Volume / Capacity ratio.
e. Level of Service

7.0 PROPOSED PROJECT TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Description of Construction / Activities

Proposed project traffic generation was determined for *Construction* and *Operations and Maintenance* (O&M) phases based on the intensity of proposed related activities at the project site. The construction phase is expected to commence in March of 2012, with the entire project completed by the end of 2012. As described previously, the project will be constructed in two phases. 158 turbines are proposed to be installed in two Phases. Phase 2 work will commence after all work in Phase 1 has been completed.

Based on the information provided by the project proponent, construction activities include the following types of activities:

1. Decommissioning
2. Roads / Foundations
3. Electrical
4. Erection
5. Administration / Management
6. Post Construction Operations and Maintenance

A matrix summarizing the number of employees and construction trucks required for various activities and the duration for which they are needed is included in ***Appendix C***.

7.1.1 *Employee Traffic*

PHASE 1

- In Phase 1, eighteen (18) *management employees* will be required from weeks 1 through 52.
- Forty three (43) *Roads / Foundation employees* will be operating from weeks 1 through 19.
- Twenty four (24) *electrical employees* will be operating from weeks 13 through 41.
- Forty three (43) *erection employees* will be operating from weeks 19 through 39.

PHASE 2 (Will not occur simultaneously with Phase 1)

- In Phase 2, eleven (11) *management employees* will be required from weeks 42 through 68.
- Twenty six (26) *Roads / Foundation employees* will be operating from weeks 43 through 51.
- Fourteen (14) *electrical employees* will be operating from weeks 47 through 65.
- Twenty six (26) *erection employees* will be operating from weeks 51 through 63.

OPERATIONS AND MAINTENANCE AND SUB STATION CONSTRUCTION (Will occur simultaneously with Phase 1)

- Thirteen (13) *employees* for the Operations and Maintenance Building will be required from weeks 16 through 24.
- Between 5 and 10 *employees* will be required for the construction of the substation from weeks 24 through 48.

7.1.2 *Construction Truck Traffic*

Truck traffic is anticipated for various durations for the following construction related activities:

1. A temporary batch plant will be installed to supply concrete for foundations. Transporting water, aggregate, sand and cement to the batch plant.
2. Transporting concrete from the batch plant to each turbine location at the project site.
3. Transporting gravel / water for the road work.
4. Transporting water for the turbine foundations
5. Transporting concrete from the batch plant for the construction of the Operations and Maintenance building.
6. Deliver specialized equipment such as towers, blades and turbines to each turbine location
7. Miscellaneous delivery and crew trucks
8. Fuel delivery

Table 7-1 summarizes the number of employees and construction trucks required by duration over the entire construction period. The maximum amount of traffic on any given day during the highest intensity is obtained by adding the traffic required for the various overlapping activities during the construction period. As seen in *Table 7-1*, the maximum number of employees required is 167 and the number of trucks required is 154.

TABLE 7-1
SUMMARY OF CONSTRUCTION TRAFFIC

Duration	Employees	Trucks
Week 1 to Week 68	0	6
Week 1 to Week 52	85	77
Week 16 to Week 48	20	2
Week 42 to Week 52	11	
Week 42 to Week 68	51	75
Maximum	**167**	**154**

Source: Estimated from construction traffic data from Aspen Engineering, February 2011.

7.1.3 *Post Construction Operations and Maintenance*

One fork lift will be available on-site and one crane will be brought on-site once a year for on-site maintenance. Approximately 17 full time employees for year round operation and 12 temporary workers for 12 weeks a year are expected to be required for operations and maintenance.

Table 7–2 summarizes the construction and O&M traffic summarized in *Table 7-1* and the calculated total employee and truck traffic generated on a daily basis.

TABLE 7-2
DETERMINING MAXIMUM DAILY CONSTRUCTION AND O & M TRAFFIC

Description	Quantity	Trips	PCE [a]	Equivalent Passenger Cars [b]
Construction				
Trucks [c]	154	308	1.7	524
Employees				
Management [d]	29	4	1.0	116
Construction [e]	138	2	1.0	276
Subtotal Construction Employees	*167*			*392*
Total Daily Construction ADT				**916**
Operations and Maintenance				
Trucks	1	2	1.7	3
Employees	29	2	1.0	58
Total O & M ADT				**61**

Footnotes

a. "Passenger Car Equivalence" (PCE) factor. The surrounding terrain is generally level and the PCE factor is 1.7 for level terrain per Exhibit 20-9 Highway Capacity Manual (HCM).
b. Applying the PCE factor to the truck trips, the passenger car equivalent trips is obtained.
c. Each truck generates two trip ends, one inbound trip to the site and one outbound trip from the site.
d. Each management employee is assumed to generate four trips, 2 trips to and from work and 2 additional trips to the worksite or other destinations during a workday
e. Each construction employee is assumed to generate 2 trips, to and from work.

General Notes:

1. Construction Phases I and II will not occur simultaneously. The maximum of construction truck / employee traffic that occurs simultaneously is assumed for the entire construction period.
2. Work hours: 10-hour work days Mondays through Saturdays. May work early morning, evenings or late nights. Construction staff assumed during peak hours to analyze the "worst-case" condition.

The management employees are assumed to generate 4 trips daily, 2 trips to and from work and 2 trips to various work locations during the work day. The construction employees are assumed to generate two trips per day, one trip from home to work and one trip from work back to home at the end of the day.

The traffic associated with the proposed construction activities at the project site includes trucks of varying sizes. Trucks potentially have greater impacts on a roadway network than passenger cars. A passenger-car equivalence factor was applied to the truck traffic to account for this fact. Exhibit 20-

9, Passenger-Car Equivalents on Two Way and Directional Segments in the *Highway Capacity Manual, 2000* recommends Passenger Car Equivalence of 1.7 for heavy vehicles on level terrain. Most of the study area is level terrain (*Appendix C*). Hence, this factor was applied to the truck trips.

Table 7–3 summarizes the peak hour construction traffic. As seen in *Table 7-3*, the construction related traffic is substantially greater than the O&M traffic, which validates the assertion that analysis of the construction impacts would represent the worst-case potential traffic impacts of the project.

The directional split assumed for truck traffic is 50% inbound and 50% outbound during the AM and PM peak hours. For employees, a directional split of 90% inbound and 10% outbound and 10% inbound and 90% outbound is assumed during the AM and PM peak hours respectively. The total construction traffic analyzed in this report is 916 ADT, with 219 trips (176 inbound / 43 outbound) during the AM peak hour, and 219 trips during the PM peak hour (43 inbound / 176 outbound) during the PM peak hour.

7.2 Trip Distribution

The trip distribution was developed separately for the truck and management / construction employees. Information regarding the source of various construction materials and equipment was first obtained from Aspen Engineering. This information was used to develop the potential percentage of construction related traffic generated by the construction activities, by direction.

7.2.1 *Construction Trip Distribution (Trucks)*

Based on the sources of various construction materials, the regional distribution of traffic was determined. ***Table 7-4*** demonstrates the basis for the distribution percentages that are assumed in this analysis. The trip distribution was determined using Phase I traffic since Phase II is expected to have the same mix of construction traffic, but with lower volumes and / or for a shorter duration, since fewer turbines will be installed in Phase II than in Phase I.

The source for road gravel is in Ocotillo, north of I-8 and hence, the traffic generated by this activity is not expected to utilize the study area roadway segments and intersections. The gravel quarry in Ocotillo is located just south of the project Site 1, north of I-8. The traffic generated by the gravel quarry is 30% and therefore localized. Most of the remaining construction materials and equipment (60%) are expected to be from sources north or east of the project site. The route to points north is east on I-8 and north on SR 111. Therefore all traffic to and from points north is also oriented to the east on I-8 at the project site. No truck traffic is anticipated to the south, except to Site 2, at the SR 98 (Yuha Cutoff) / Imperial Highway intersection. The remaining 10% is oriented to the west on I-8.

7.2.2 *Construction Trip Distribution (Management / Construction Employees)*

As seen in *Table 7-4*, it is assumed that 80% of the employees (management and construction) are from El Centro and the remaining 20% are from San Diego.

7.3 Project Trip Assignment

Daily and peak hour project traffic generation for the construction-related truck (with PCE) and employee vehicle traffic shown in *Tables 7–2* and *7-3* were distributed and assigned separately to the local street system based on their respective distribution percentages shown on ***Figures 7–1*** and *7–2*.

TABLE 7-3
PEAK HOUR TRAFFIC

AM Peak Hour

Description	Daily Trips [a]	Total	Inbound	Outbound
Construction				
Trucks	524	52	26	26
Employees				
Management	116	29	26	3
Construction	276	138	124	14
Subtotal Employee Traffic	*392*	*167*	*150*	*17*
Total AM Peak Hour Construction Traffic	**916**	**219**	**176**	**43**
Operations and Maintenance				
Trucks	3	0	0	0
Employees	58	29	23	6
Total AM Peak Hour O & M Traffic	**61**	**29**	**23**	**6**

PM Peak Hour

Description	Daily Trips [a]	Total	Inbound	Outbound
Construction				
Trucks	524	52	26	26
Employees				
Management	116	29	3	26
Construction	276	138	14	124
Subtotal Employee Traffic	*392*	*167*	*17*	*150*
Total PM Peak Hour Construction Traffic	**916**	**219**	**43**	**176**
Operations and Maintenance				
Trucks	3	0	0	0
Employees	58	29	23	6
Total PM Peak Hour O & M Traffic	**58**	**29**	**6**	**23**

Footnotes

a. Daily trips in terms of equivalent "Passenger Cars" (*Table 7-2*).
b. Each management employee is assumed to generate four trips, 2 trips to and from work and 2 additional trips to the worksite or other destinations during a workday
c. Each construction employee is assumed to generate 2 trips, to and from work.

General Notes:

1. Work hours: 10-hour work days Mondays through Saturdays. May work early morning, evenings or late nights. Construction staff assumed during peak hours to analyze the "worst-case" condition.

TABLE 7-4
CONSTRUCTION TRAFFIC DISTRIBUTION ESTIMATE

Description	From	Quantity	Employees [a]				Trucks [a]			
			West	East	North	South	West	East	North	South
Phase I										
Management										
Employees	From El Centro (E) & San Diego (W)	18 Employees	4	14						
Roads/Foundation Construction										
Employees	From El Centro (E) & San Diego (W)	43 Employees	8	35						
Water for Road Maintenance	From Pine Valley (WNW)	2 HHDT [b]						2		
Water for Concrete Foundation	From Pine Valley (WNW)	4 HHDT						4		
Gravel for Roads	From Ocotillo	30 HHDT								30
Concrete Foundation Aggregate	From near Thermal, California	35 HHDT					35			
Concrete Foundation Cement	From Victorville (NNW)	6 HHDT					6			
Electrical										
Employees	From El Centro (E) & San Diego (W)	24 Employees	5	19						
Water for Road Maintenance	From Pine Valley (WNW)	4 HHDT						4		
Erection										
Employees	From El Centro (E) & San Diego (W)	43 Employees	8	35						
WTG Delivery	From Texas (E)	18 HHDT					18			
		Total Phase I	**25**	**103**	**0**	**0**	**59**	**10**	**0**	**30**
		Calculated Percentages	*19.5%*	*80.5%*			*59.6%*	*10.1%*	*0%*	*30.3%*
		Distribution Percentages Adopted for Analysis	**20%**	**80%**			**60%**	**10%**	**0%**	**0%**

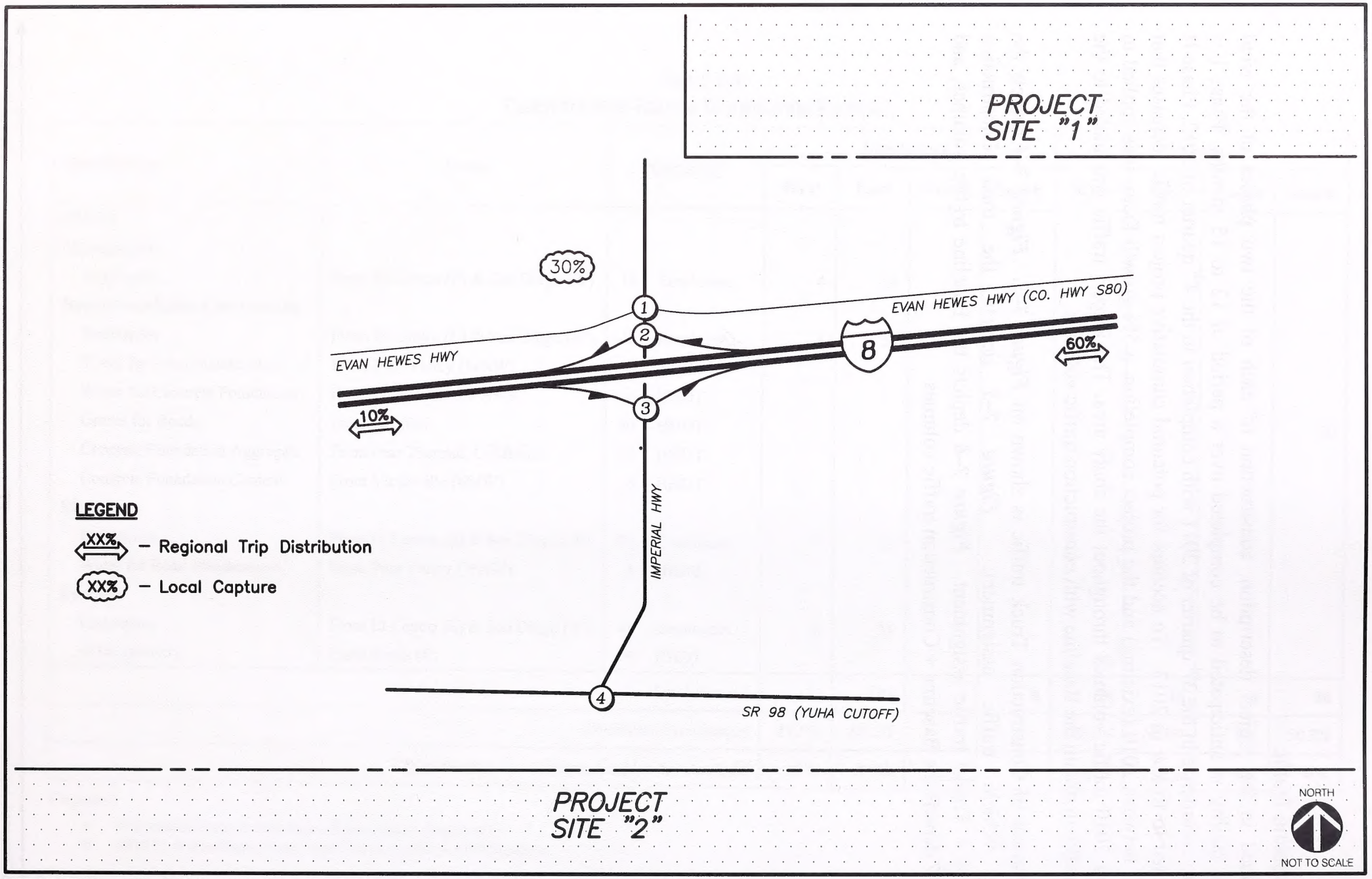
Footnotes:

a. Information obtained from Aspen Engineering, February 2011.
b. HHDT - Heavy-Heavy-Duty Diesel Trucks (33,001 to 60,000 pounds)

7.4 Baseline Traffic

As explained in the project description, construction of each of the two phases of the wind generation facility is anticipated to be completed over a period of 12 to 15 months. Phase I is expected to commence in the 3rd quarter of 2011 with completion in the 4th quarter of 2012. Phase II is anticipated to follow in 2013. To account for potential cumulative project traffic increases that may occur between 2010 (existing) and the project completion, a 5% growth factor was applied to all existing 2010 traffic volumes throughout the study area. The Project traffic was added to the baseline traffic to obtain the Baseline with construction traffic volumes.

The assignment of Construction Truck traffic is shown on ***Figure 7–3.*** ***Figure 7–4*** depicts the Employee vehicle traffic assignment. ***Figure 7–5*** depicts the total Construction (Employees + Truck) traffic assignment. ***Figure 7–6*** depicts the Baseline traffic volumes, and ***Figure 7–7*** depicts the Baseline + Construction traffic volumes.

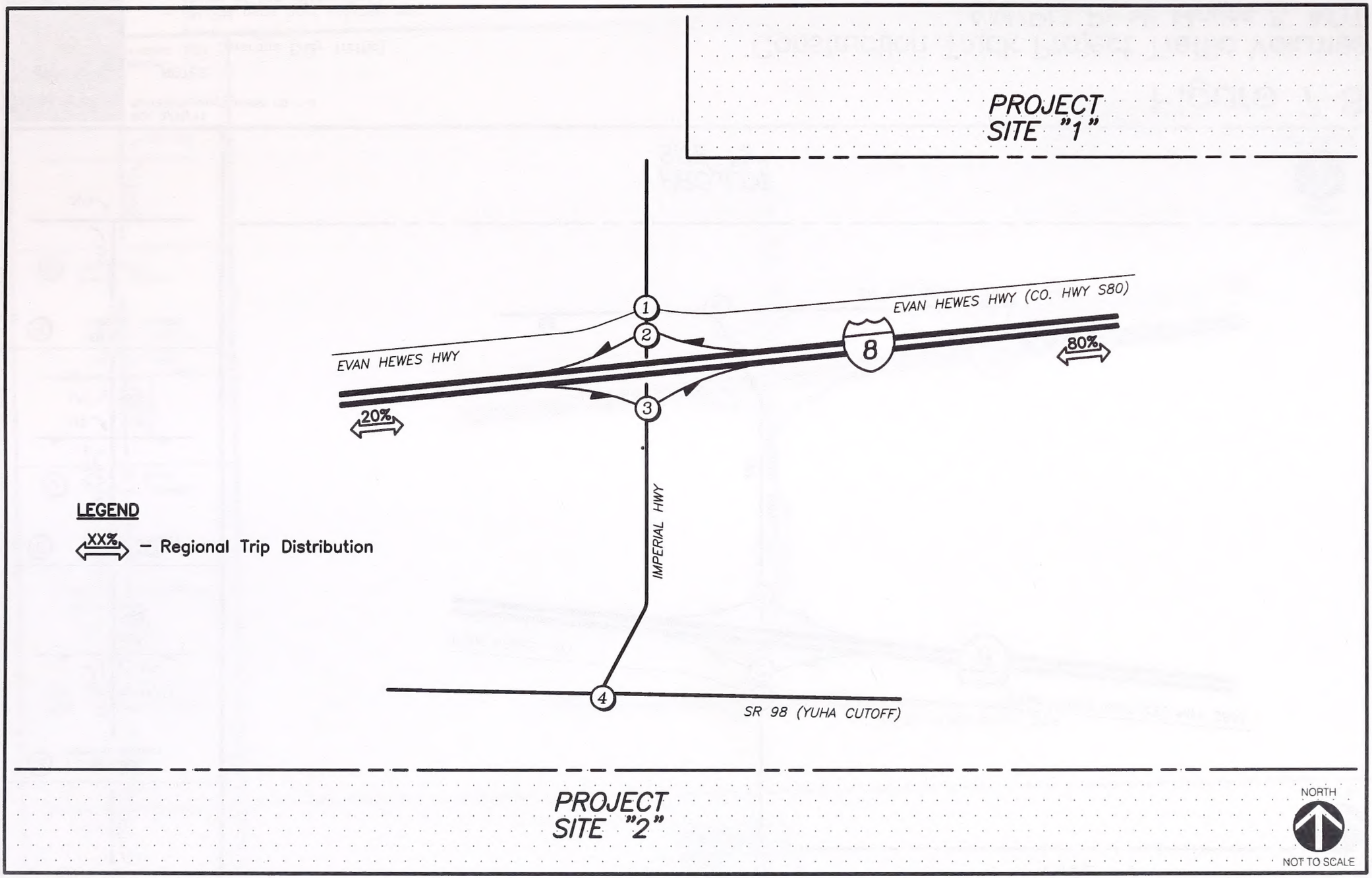


REV. 03/16/11
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Figure 7-1

Truck Traffic Distribution

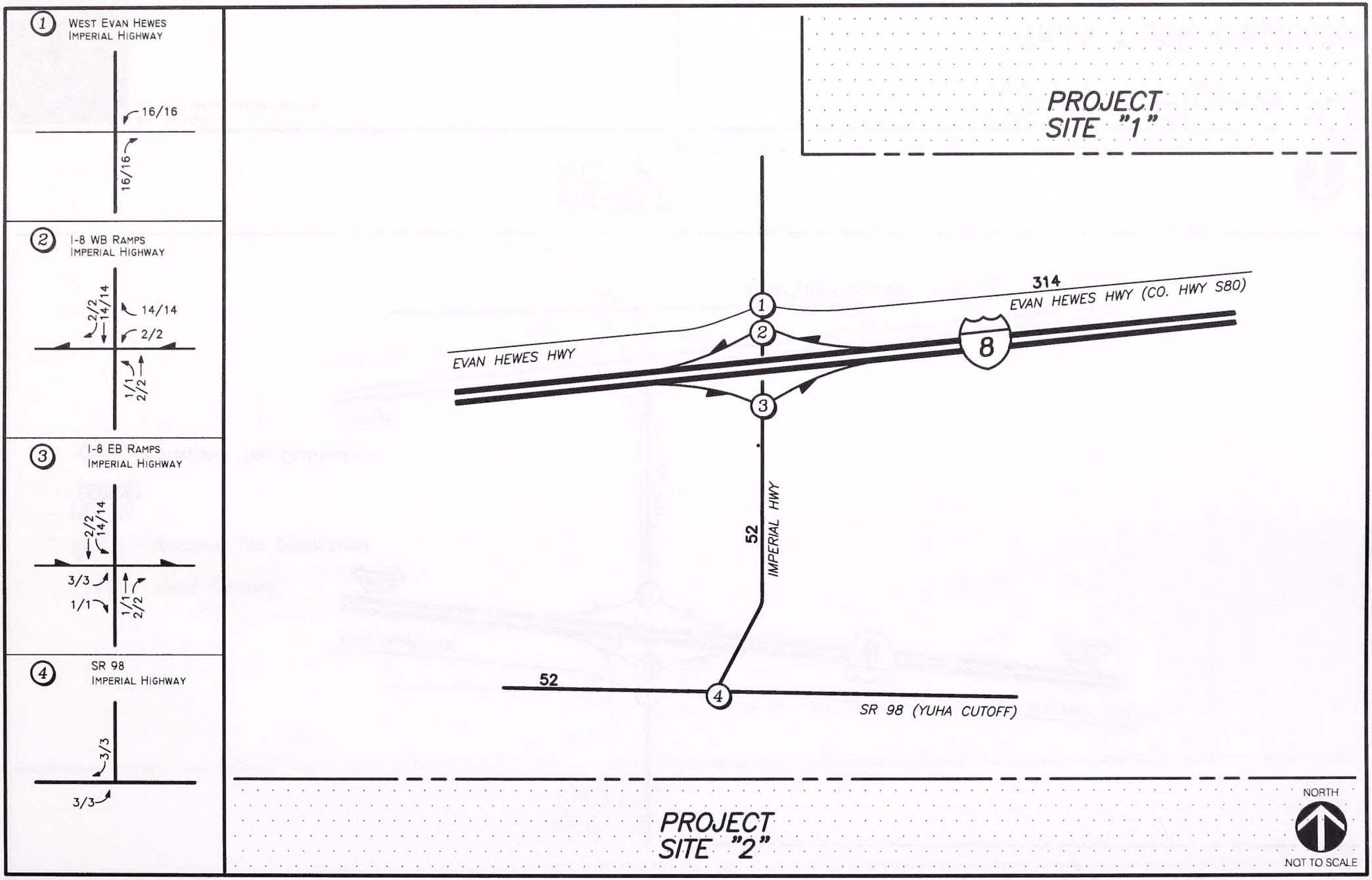


REV. 03/16/11
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Figure 7-2

Truck Traffic Distribution



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N:/1956/Figures/LLG1956 FIG 7-3

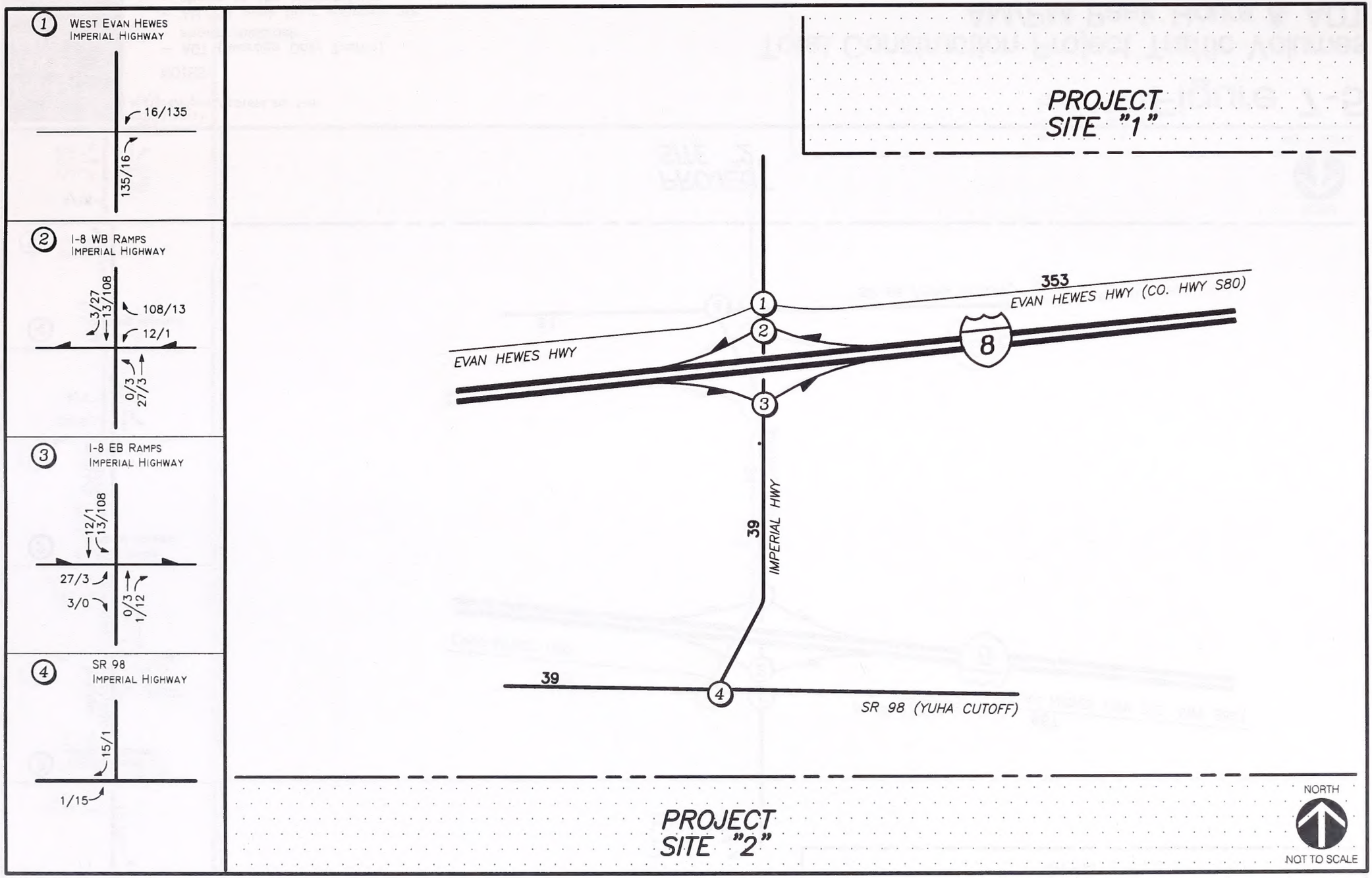
NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 7-3

Construction Truck Project Traffic Volumes AM/PM Peak Hours & ADT

OCOTILLO WIND ENERGY FACILITY



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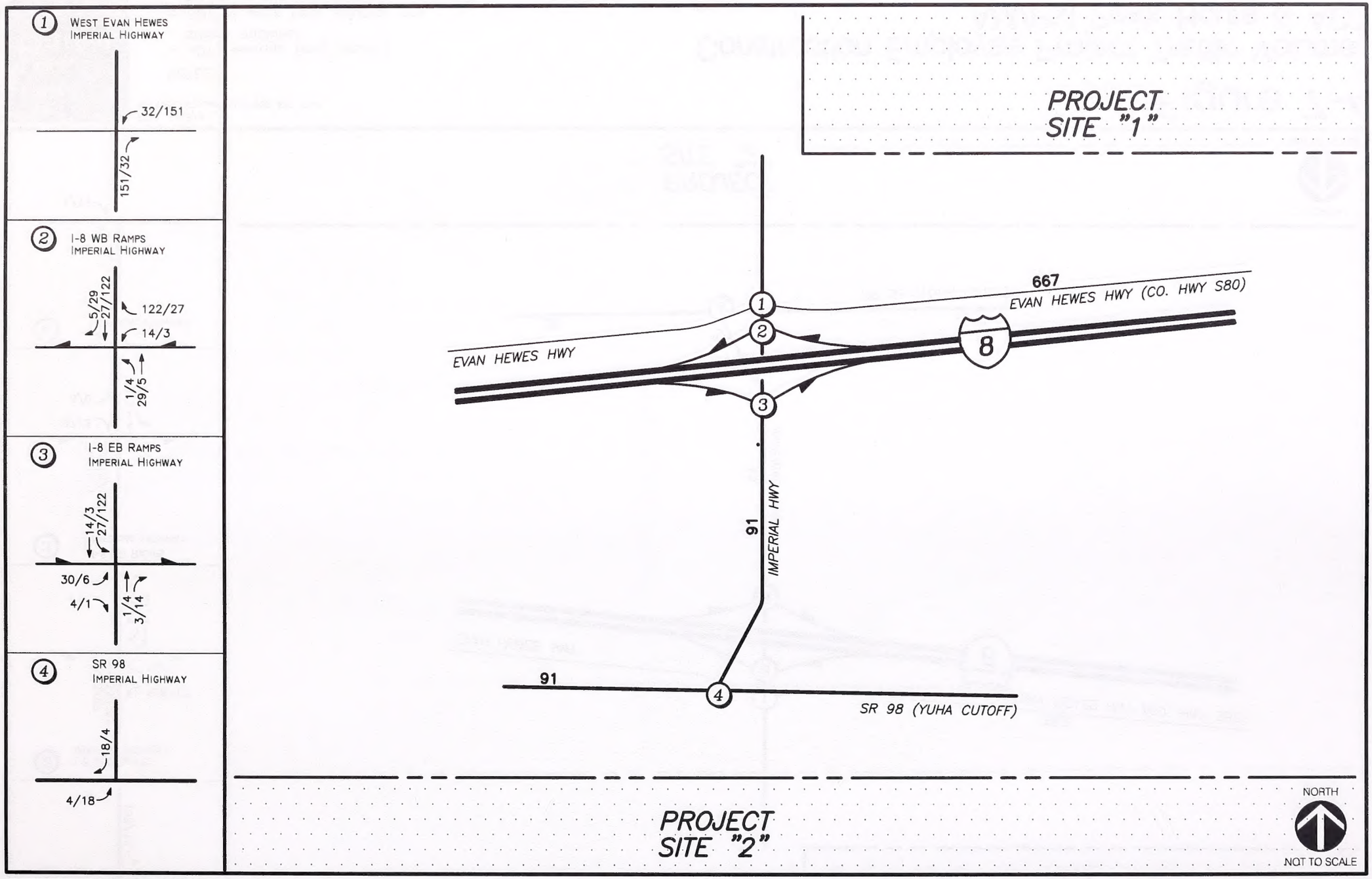
NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 7-4

Construction Employee Project Traffic Volumes AM/PM Peak Hours & ADT

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REV. 3/16/11
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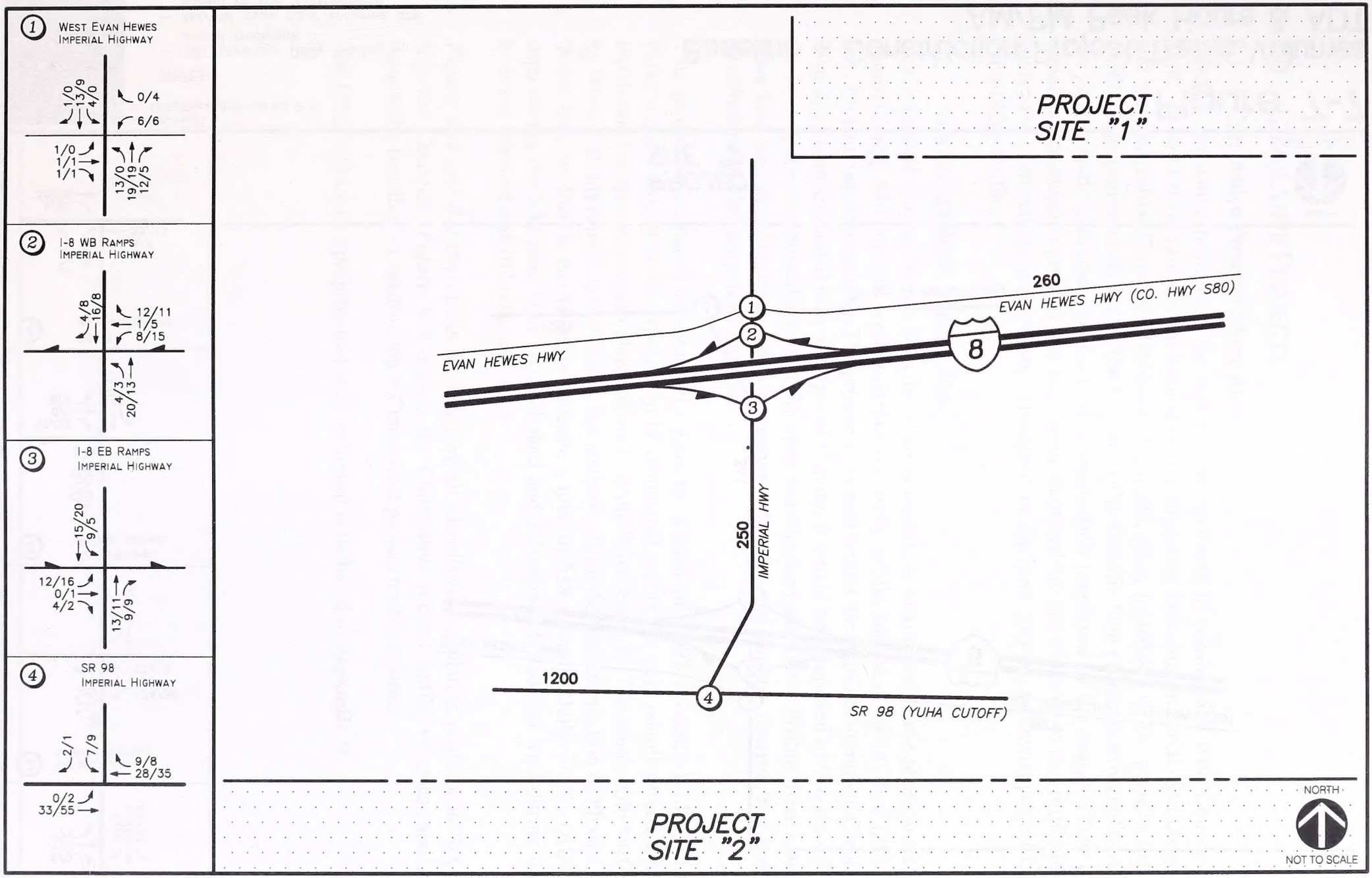
NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 7-5

Total Construction Project Traffic Volumes AM/PM Peak Hours & ADT

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REV. 3/16/11
N:/1956/Figures/LLG1956 FIG 7-6

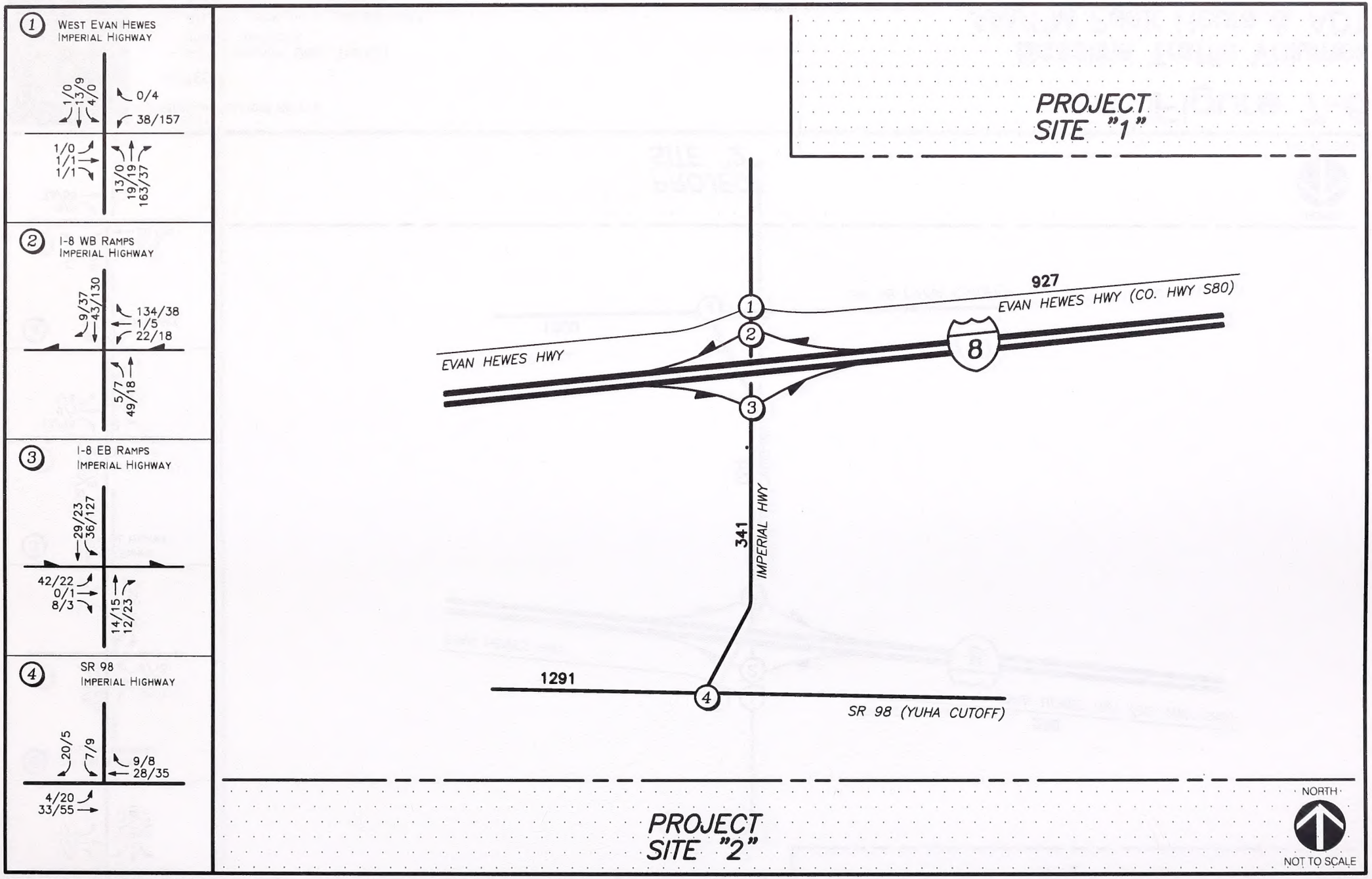
NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 7-6

Baseline Traffic Volumes AM/PM Peak Hours & ADT

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REV. 3/16/11
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NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 7-7

Baseline + Construction Project Traffic Volumes AM/PM Peak Hours & ADT

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8.0 CUMULATIVE PROJECTS

8.1 Cumulative Projects Study Area

Several cumulative projects in the region were reviewed in consultation with County of Imperial Staff. Most of these projects are located over a large area including Imperial, San Diego, Riverside and San Bernardino Counties. However, this traffic study includes only the projects that contribute traffic to the project study area. The Coyote Wells Specific Plan project is expected to add traffic to the project study area intersections in the construction timeframe of the project (Year 2012). The remaining cumulative projects that have been identified are not expected to add traffic to the project study area intersections or segments. Therefore, traffic from only the following project is considered cumulative traffic.

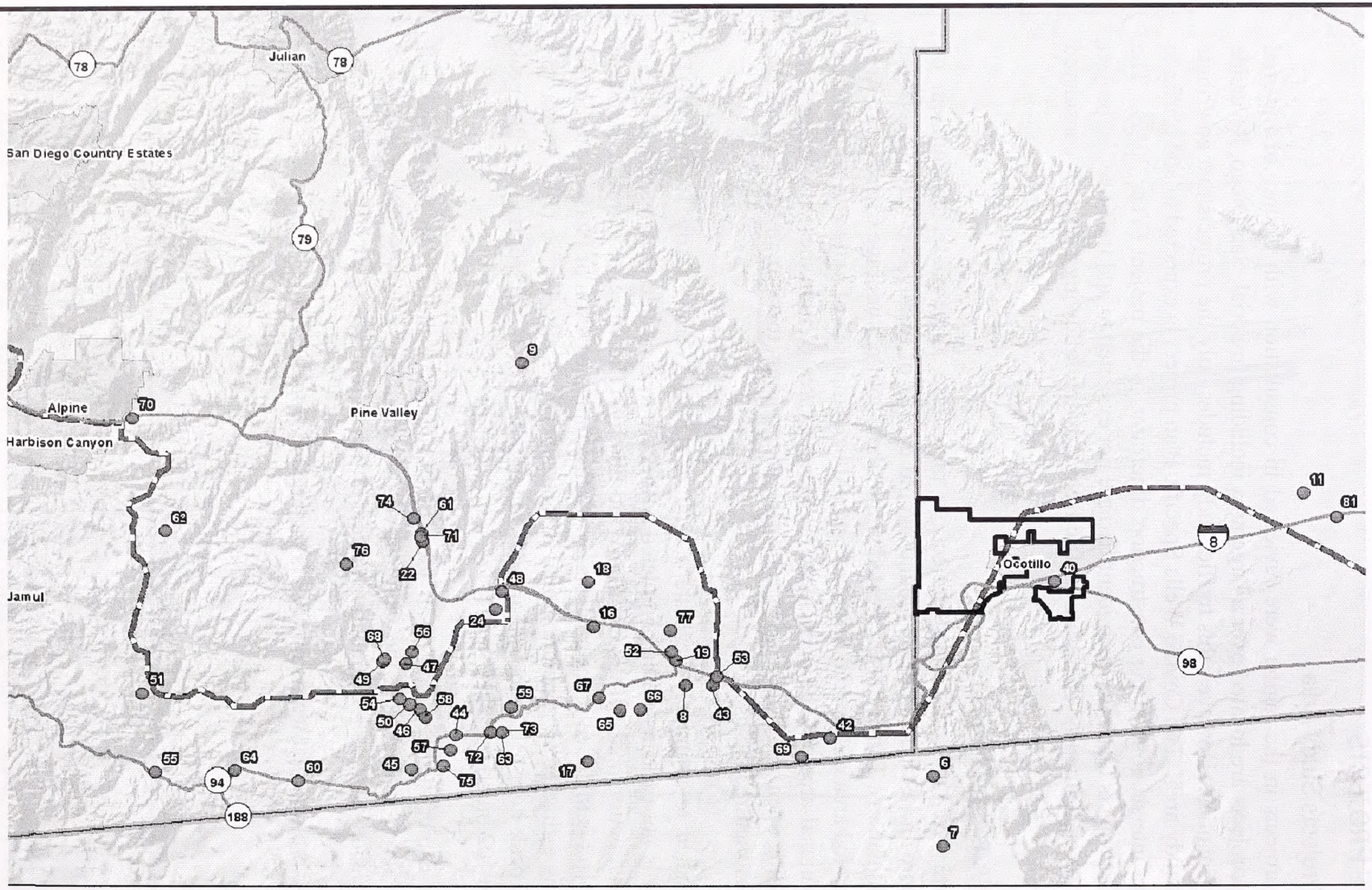
8.2 The Coyote Wells Specific Plan

The proposed Coyote Wells Specific Plan (project), a mixed-use, three-phase development on approximately 944 acres in western Imperial County would consist of twenty-two (22) parcels and ten (10) land use designations. The project is located within the Ocotillo/Nomirage Community Area Plan in an unincorporated area of Imperial County. It would be comprised of two main components, the open space/recreational area and the open space/preservation area. Within these major areas are other land uses including open space, recreation, education and training, tourism, residential, storage, hotel/resort, and infrastructure land uses.

This project is estimated to ultimately generate a total of 4,591 Average Daily Traffic (ADT). However, the project is not expected to be completed within the next couple of years, which is the timeframe for the construction phase of the Ocotillo Wind Energy. Therefore, only traffic generated by Phase I of this project is included in the analysis. With the implementation of Phase I, the Coyote Wells Specific Plan is estimated to generate a total of 538 Average Daily Traffic (ADT) with 134 trips during the AM peak hour (102 inbound and 32 outbound) and 134 trips during the PM peak hour (32 inbound and 102 outbound trips.

Figure 8–1 and ***8-2*** depict the locations of all identified Cumulative projects in San Diego and Imperial Counties. ***Figure 8–3*** depicts the Cumulative project traffic volumes, and ***Figure 8–4*** depicts the Baseline + Construction + Cumulative project traffic volumes.

The list of cumulative projects that were reviewed is included in ***Appendix D***.



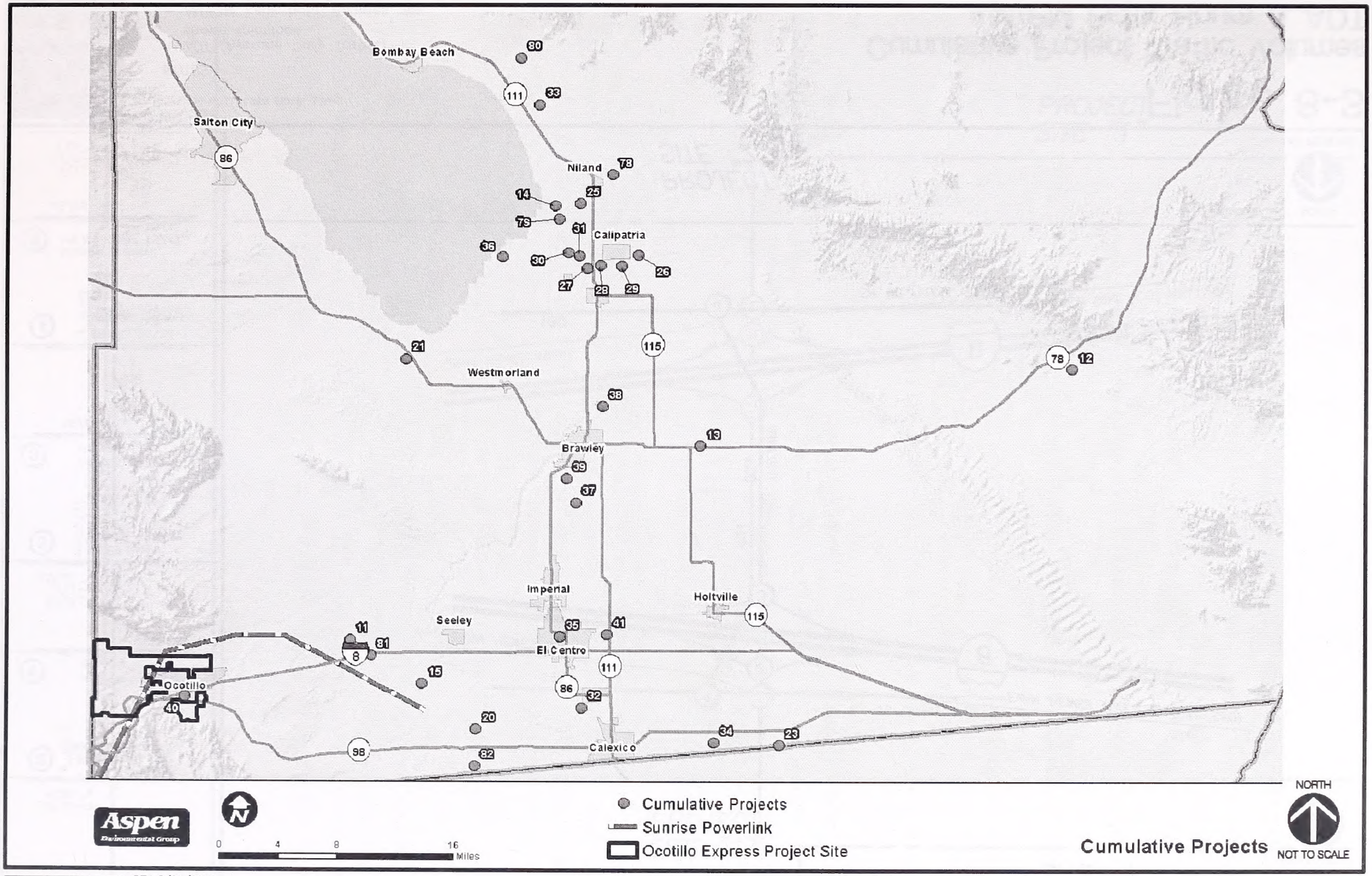
Aspen Environmental Group

REV. 5/24/2011
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Figure 8-1

Cumulative Project Locations - San Diego County

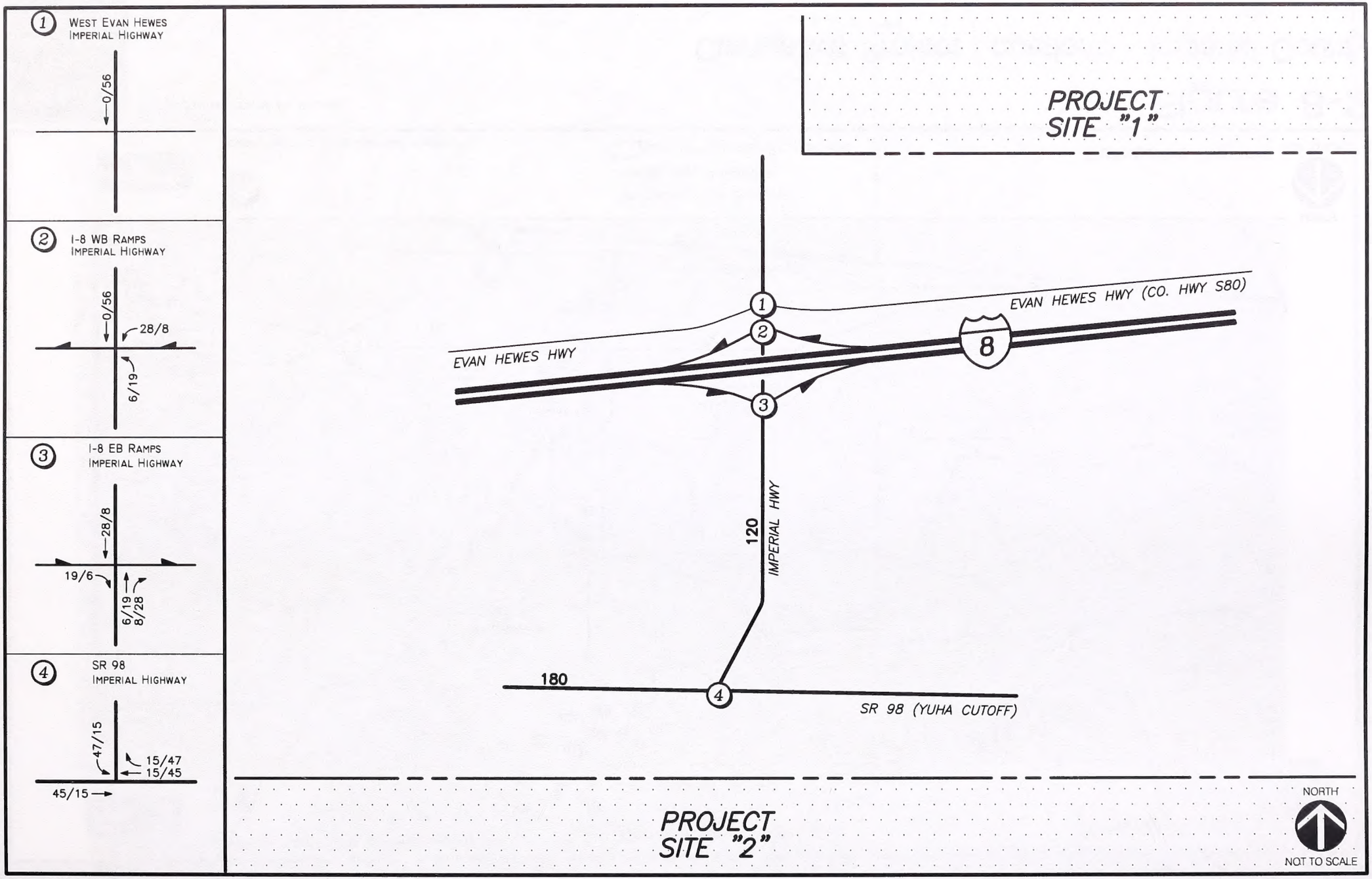


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Figure 8-2

Cumulative Project Locations - Imperial County



REV. 5/24/2011
N:\1956\Figures\LLG1956 FIG 8-3.dwg

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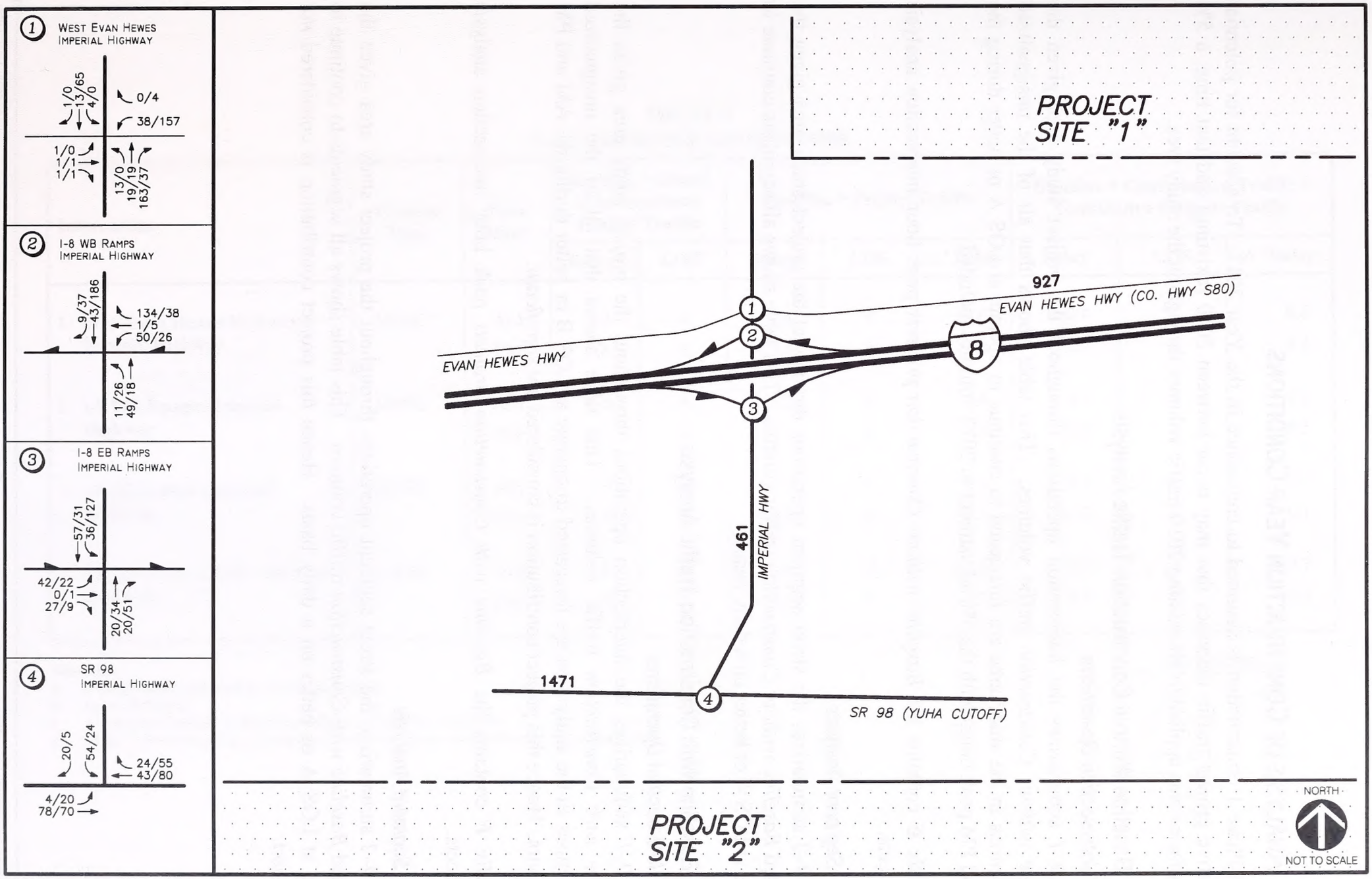
NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 8-3

Cumulative Project Traffic Volumes AM/PM Peak Hours & ADT

OCOTILLO WIND ENERGY FACILITY



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REV. 5/24/2011
N:\1956\Figures\LLG1956 FIG 8-4.dwg

NOTES:

- ADT (Average Daily Traffic) shown midblock
- AM/PM peak hour volumes are shown at the intersections

Figure 8-4

Baseline + Construction Project Traffic + Cumulative Project Traffic Volumes AM/PM Peak Hours & ADT

OCOTILLO WIND ENERGY FACILITY

9.0 Analysis of Construction Year Conditions

Project Phase 1 construction is assumed to commence in the Year 2012. To account for potential cumulative project traffic increases that may occur between 2010 (existing) and that time, a 5% growth factor was applied to all existing 2010 traffic volumes throughout the study area.

9.1 Baseline Without Construction Traffic Analysis

9.1.1 *Intersection Operations*

Table 9–1 summarizes the intersection operations throughout the project study area given the *Baseline without Construction* traffic volumes. This table shows that all of the unsignalized intersections in the study area are forecasted to continue to operate at LOS A or better during the AM and PM peak hours with the 5% adjustment to 2012 volumes included.

Appendix E contains the *Baseline without Construction projects* peak hour intersection analysis worksheets.

9.1.2 *Segment Analysis*

Table 9–2 summarizes the street segment operations throughout the project study area given the projected *Baseline without Construction* traffic volumes. This table shows all segments continue to operate at LOS A or better on a daily basis.

9.2 Baseline With Construction Traffic Analysis

9.2.1 *Intersection Operations*

Table 9–1 summarizes the intersection operations throughout the project study area given the *Baseline with Construction* traffic volumes. This table shows that all of the unsignalized intersections in the study area are forecasted to operate at LOS B or better during the AM and PM peak hours. Hence this project contribution is considered *not significant.*

Appendix F contains the *Baseline with Construction projects* peak hour intersection analysis worksheets.

9.2.2 *Segment Analysis*

Table 9–2 summarizes the street segment operations throughout the project study area given the projected *Baseline with Construction* traffic volumes. This table shows all segments to continue to operate at LOS A or better on a daily basis. Hence this project contribution is considered *not significant.*

TABLE 9-1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Baseline Without (Construction) Project Traffic		Baseline + Project Traffic			Baseline + Construction Traffic + Cumulative Projects Traffic		
			Delay[a]	LOS[b]	Delay	LOS	Δ[c] Delay	Delay	LOS	Δ[c] Delay
1. West Evan Hewes Highway / Imperial Highway	MSSC[d]	AM	9.0	A	9.8	B	0.8	10.4	B	0.6
		PM	8.8	A	9.8	A	1.0	10.2	B	0.4
2. I-8 WB Ramps / Imperial Highway	MSSC	AM	8.6	A	9.2	A	0.6	9.3	A	0.1
		PM	8.7	A	9.1	A	0.4	9.6	A	0.5
3. I-8 EB Ramps / Imperial Highway	MSSC	AM	8.8	A	9.4	A	0.6	9.5	A	0.1
		PM	8.8	A	11.1	B	2.3	11.2	B	0.1
4. SR 98 (Yuha Cutoff) / Imperial Highway	MSSC	AM	8.8	A	8.8	A	0.0	9.5	A	0.7
		PM	9.0	A	9.1	A	0.1	9.9	A	0.8

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to Project / Cumulative projects
d. MSSC – Minor Street Stop Controlled intersection. Minor street left turn delay is reported.

UNSIGNALIZED

Delay	LOS
0.0 < 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
> 50.1	F

TABLE 9-2
CONSTRUCTION YEAR STREET SEGMENT OPERATIONS

Street Segment	Roadway Classification [a]	Existing Capacity (LOS E)[b]	Baseline Without (Construction) Project Traffic			Existing + (Construction) Project Traffic				Existing + Project + Cumulative Projects Traffic			
			ADT [c]	V/C [d]	LOS [e]	ADT	V/C	LOS	Δ[f]	ADT	V/C	LOS	Δ[f]
W. Evan Hewes Highway													
East of Imperial Highway	2-Lane Collector	16,200	260	0.016	A	927	0.057	A	0.041	927	0.057	A	0.041
Imperial Highway													
I-8 EB Ramps to SR-98 Yuha Cutoff	2-Lane Collector	16,200	250	0.015	A	341	0.021	A	0.006	461	0.028	A	0.013
SR-98 Yuha Cutoff													
West of Imperial Highway	2-Lane Collector	16,200	1,200	0.074	A	1,291	0.080	A	0.006	1,471	0.091	A	0.011

Footnotes:

a. County of Imperial Valley roadway classification
b. Roadway capacity corresponding to Level of Service E from Imperial County Standard Street Classification, Average Daily Vehicle Trips table.
c. Average Daily Traffic volumes
d. Volume / Capacity ratio.
e. Level of Service
f. Increase in V/C ratio due to project traffic

9.3 Baseline With Construction and Cumulative Projects Analysis

9.3.1 *Intersection Analysis*

Table 9–1 summarizes the intersection operations throughout the project study area given the *Baseline with Construction* traffic volumes. This table shows that all of the unsignalized intersections in the study area are calculated to operate at LOS B or better during the AM and PM peak hours. Hence this contribution is considered *not significant*.

Appendix G contains the *Baseline with Construction and Cumulative projects* peak hour intersection analysis worksheets.

9.3.2 *Segment Analysis*

Table 9–2 summarizes the street segment operations throughout the project study area given the projected *Baseline with Construction* traffic volumes. This table shows all segments to continue to operate at LOS A or better on a daily basis. This contribution is considered *not significant*.

10.0 PROJECT ALTERNATIVES 2 AND 3

Three alternatives are proposed for the project, each of them with fewer turbines than the Proposed project. The Proposed project consists of 158 wind turbine generators (WTG). Alternative 2 consists of the installation of 137 WTG, while 105 WTG are proposed to be installed in Alternative 3.

As seen in Section 2.0 Project Description, Alternatives 2 and 3 will utilize the same materials and equipment as the Proposed project but will be constructed a single Phase lasting 12 to 15 months. Therefore, the intensity of traffic per day will likely be the same as in the Proposed project. In the Proposed Alternative 3, no turbines will be built in Site 2 and hence, there will be no construction related traffic at the following facilities:

- SR 98 / Imperial Highway intersection
- Segment of Imperial Highway between I-8 EB ramps and SR 98
- Segment of SR 98 west of Imperial Highway

As concluded in Section 9.0, Construction Year Analysis of the Proposed project, no impacts were determined. Therefore, it may be concluded that no impacts will occur during the construction of Alternatives 2 or 3, which are all forecasted to generate equal or lesser traffic for a shorter duration than the proposed project.

11.0 POST-CONSTRUCTION OPERATIONS

The project is estimated to generate 61 ADT during full operations, less than 7% of the 916 ADT generated by the construction traffic. As seen in Section 9.0, during construction, the project is determined to have no significant impacts at any of the study area intersections or segments. It is therefore concluded that no significant impacts will occur due to the traffic generated by the traffic during the operations and maintenance phase of the project.

12.0 PROJECT DECOMMISSIONING

At the end of the life of the project, the wind turbines will be dismantled and removed from the site and the site will be returned to its original condition. Assuming the traffic generated during the Decommissioning is the same as that during construction, the traffic generated during the decommissioning is 916 ADT. As seen in Section 9.0, during construction, the project is determined to have no significant impacts at any of the study area intersections or segments. It is therefore concluded that no significant impacts will occur due to the traffic generated by the traffic during the decommissioning phase of the project.

13.0 PROJECT ACCESS

13.1 Regional Access

Regional east / west access to the project Site 1 (north of I-8) and Site 2 (south of I-8) is via I-8 and access to the north is via I-8 / SR 111. Access to the south is via Imperial Highway and SR 98 (Yuha Cutoff).

13.2 Local Access

Local access for Site 1 is from the I-8 / Imperial Highway interchange, via Imperial Highway and Evan Hewes Highway. Local access for Site 2 is from the I-8 / Imperial Highway interchange, via SR 98 and Imperial Highway. All surface streets in the study area are undivided two-lane roadways, generally with dirt shoulders. The section of Imperial Highway between the eastbound ramps and Evan Hewes Highway has paved shoulders. Curb, gutter and sidewalks are not provided. Project sites 1 and 2 are served by an adequate network of roadways in this sparsely travelled area.

13.3 Site Access

Several site access driveways are proposed. Approximately 5 access driveways are located along Imperial Highway (County Highway S2), a paved two-lane road with dirt shoulders. Another 6 access driveways are proposed on other paved two-lane public roadways. The project should ensure adequate sight distance at these access driveways for trucks to exit the project site without obstructing traffic on public streets.

14.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

The capacity analyses performed for the key roadway segments and unsignalized intersections indicate that no significant impacts would occur during the construction phase of the proposed project, which is shown to generate more traffic than the preceding decommissioning and subsequent maintenance and operations phases. No significant impacts would be associated with the decommissioning and O&M phases, either. Therefore, no mitigation measures are required. However, adequate sight distance should be ensured at all project access driveways on public streets to ensure efficient operations on the public roads.

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES

OCOTILLO WIND ENERGY FACILITY

County of Imperial, California
June 17, 2011

LLG Ref. 3-10-1956

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

APPENDIX A

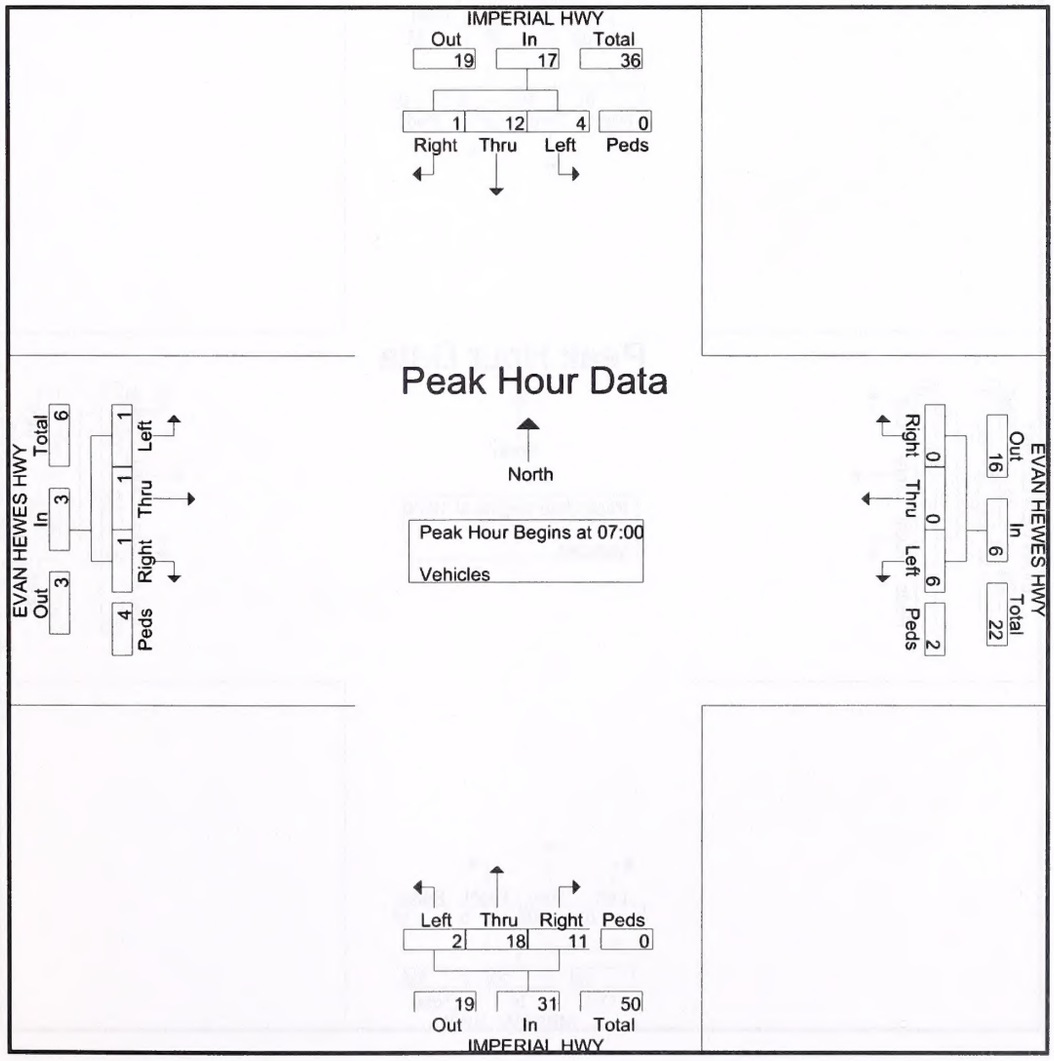
INTERSECTION AND SEGMENT MANUAL COUNT SHEETS AND VOLUMES ON I-8

True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.01.IMPERIAL HWY.EVAN HEWES HWY
Site Code : 00000000
Start Date : 12/7/2010
Page No : 2

	IMPERIAL HWY Southbound					EVAN HEWES HWY Westbound					IMPERIAL HWY Northbound					EVAN HEWES HWY Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	**2**	2	0	0	4	0	0	0	0	0	**1**	**12**	**4**	0	**17**	0	0	0	0	0	**21**
07:15	0	**6**	0	0	**6**	**3**	0	0	**2**	**5**	1	2	3	0	6	0	0	0	0	0	17
07:30	1	4	**1**	0	6	3	0	0	0	3	0	2	2	0	4	0	**1**	**1**	**3**	**5**	18
07:45	1	0	0	0	1	0	0	0	0	0	0	2	2	0	4	**1**	0	0	1	2	7
Total Volume	4	12	1	0	17	6	0	0	2	8	2	18	11	0	31	1	1	1	4	7	63
% App. Total	23.5	70.6	5.9	0		75	0	0	25		6.5	58.1	35.5	0		14.3	14.3	14.3	57.1		
PHF	.500	.500	.250	.000	.708	.500	.000	.000	.250	.400	.500	.375	.688	.000	.456	.250	.250	.250	.333	.350	.750

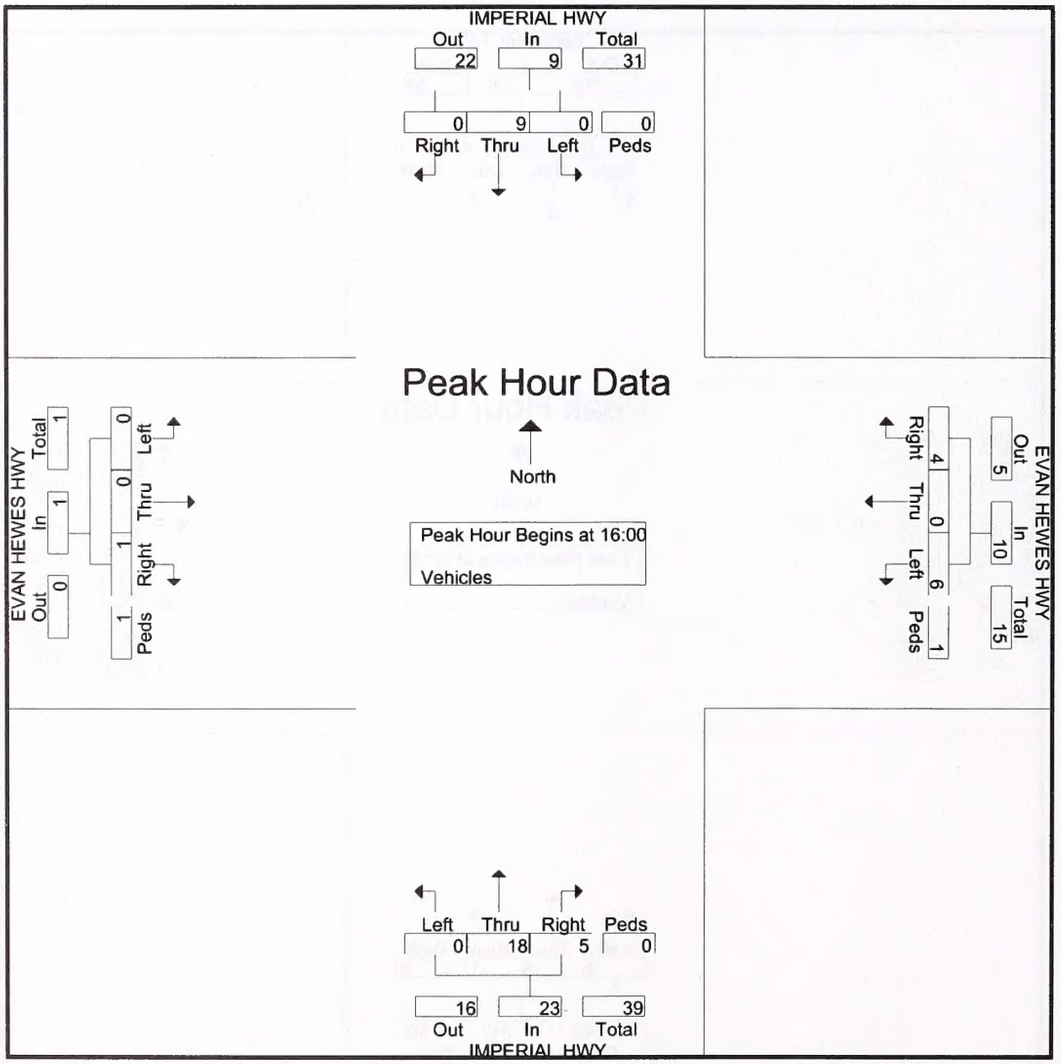


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.01.IMPERIAL HWY.EVAN HEWES HWY
Site Code : 00000000
Start Date : 12/7/2010
Page No : 3

	IMPERIAL HWY Southbound					EVAN HEWES HWY Westbound					IMPERIAL HWY Northbound					EVAN HEWES HWY Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	1	0	0	1	**3**	0	0	0	**3**	0	3	**2**	0	5	0	0	0	**1**	**1**	10
16:15	0	**4**	0	0	**4**	1	0	**2**	0	3	0	4	1	0	5	0	0	**1**	0	1	**13**
16:30	0	2	0	0	2	1	0	1	0	2	0	**8**	0	0	**8**	0	0	0	0	0	12
16:45	0	2	0	0	2	1	0	1	**1**	3	0	3	2	0	5	0	0	0	0	0	10
Total Volume	0	9	0	0	9	6	0	4	1	11	0	18	5	0	23	0	0	1	1	2	45
% App. Total	0	100	0	0		54.5	0	36.4	9.1		0	78.3	21.7	0		0	0	50	50		
PHF	.000	.563	.000	.000	.563	.500	.000	.500	.250	.917	.000	.563	.625	.000	.719	.000	.000	.250	.250	.500	.865

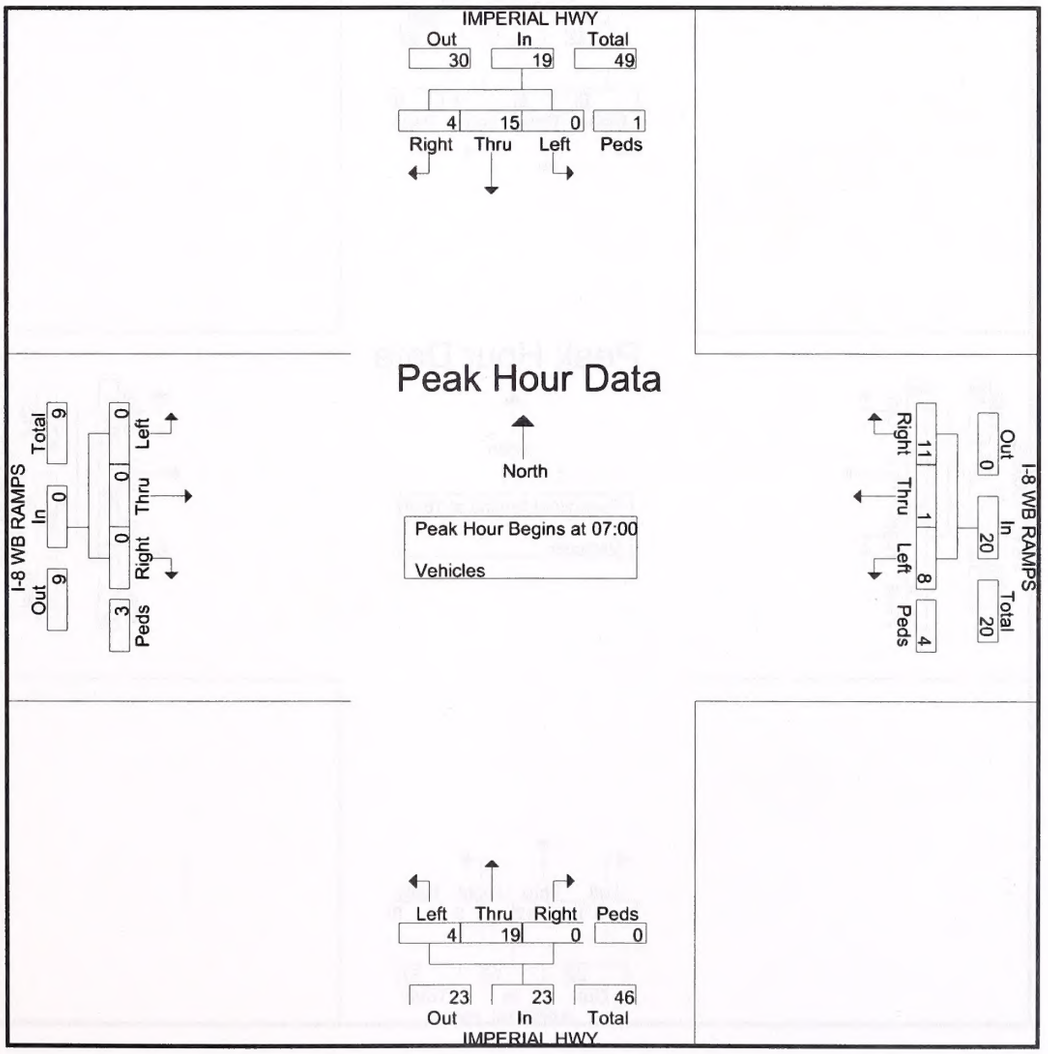


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.02.IMPERIAL HWY.I-8 WB RAMPS
Site Code : 00000000
Start Date : 12/7/2010
Page No : 2

	IMPERIAL HWY Southbound					I-8 WB RAMPS Westbound					IMPERIAL HWY Northbound					I-8 WB RAMPS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	2	0	**1**	3	**3**	0	**5**	1	**9**	0	**10**	0	0	**10**	0	0	0	0	0	22
07:15	0	**8**	1	0	**9**	3	**1**	3	**2**	9	**2**	5	0	0	7	0	0	0	0	0	**25**
07:30	0	5	**3**	0	8	1	0	1	0	2	0	3	0	0	3	0	0	0	**2**	**2**	15
07:45	0	0	0	0	0	1	0	2	1	4	2	1	0	0	3	0	0	0	1	1	8
Total Volume	0	15	4	1	20	8	1	11	4	24	4	19	0	0	23	0	0	0	3	3	70
% App. Total	0	75	20	5		33.3	4.2	45.8	16.7		17.4	82.6	0	0		0	0	0	100		
PHF	.000	.469	.333	.250	.556	.667	.250	.550	.500	.667	.500	.475	.000	.000	.575	.000	.000	.000	.375	.375	.700

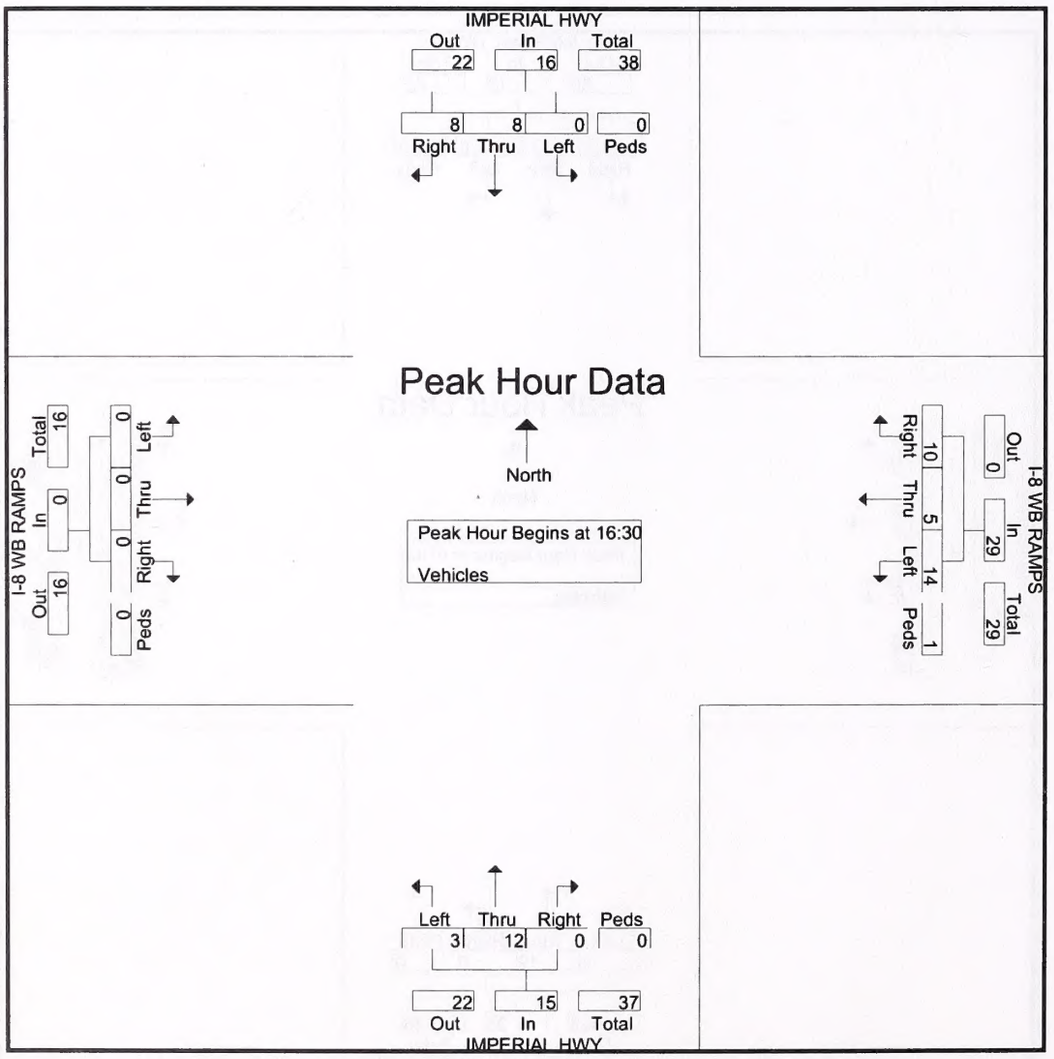


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.02.IMPERIAL HWY.I-8 WB RAMPS
Site Code : 00000000
Start Date : 12/7/2010
Page No : 3

	IMPERIAL HWY Southbound					I-8 WB RAMPS Westbound					IMPERIAL HWY Northbound					I-8 WB RAMPS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	0	2	1	0	3	2	0	**4**	0	6	0	3	0	0	3	0	0	0	0	0	12
16:45	0	**3**	0	0	3	3	**4**	1	**1**	**9**	0	**5**	0	0	**5**	0	0	0	0	0	17
17:00	0	1	**5**	0	**6**	**6**	0	2	0	8	**3**	1	0	0	4	0	0	0	0	0	**18**
17:15	0	2	2	0	4	3	1	3	0	7	0	3	0	0	3	0	0	0	0	0	14
Total Volume	0	8	8	0	16	14	5	10	1	30	3	12	0	0	15	0	0	0	0	0	61
% App. Total	0	50	50	0		46.7	16.7	33.3	3.3		20	80	0	0		0	0	0	0		
PHF	.000	.667	.400	.000	.667	.583	.313	.625	.250	.833	.250	.600	.000	.000	.750	.000	.000	.000	.000	.000	.847

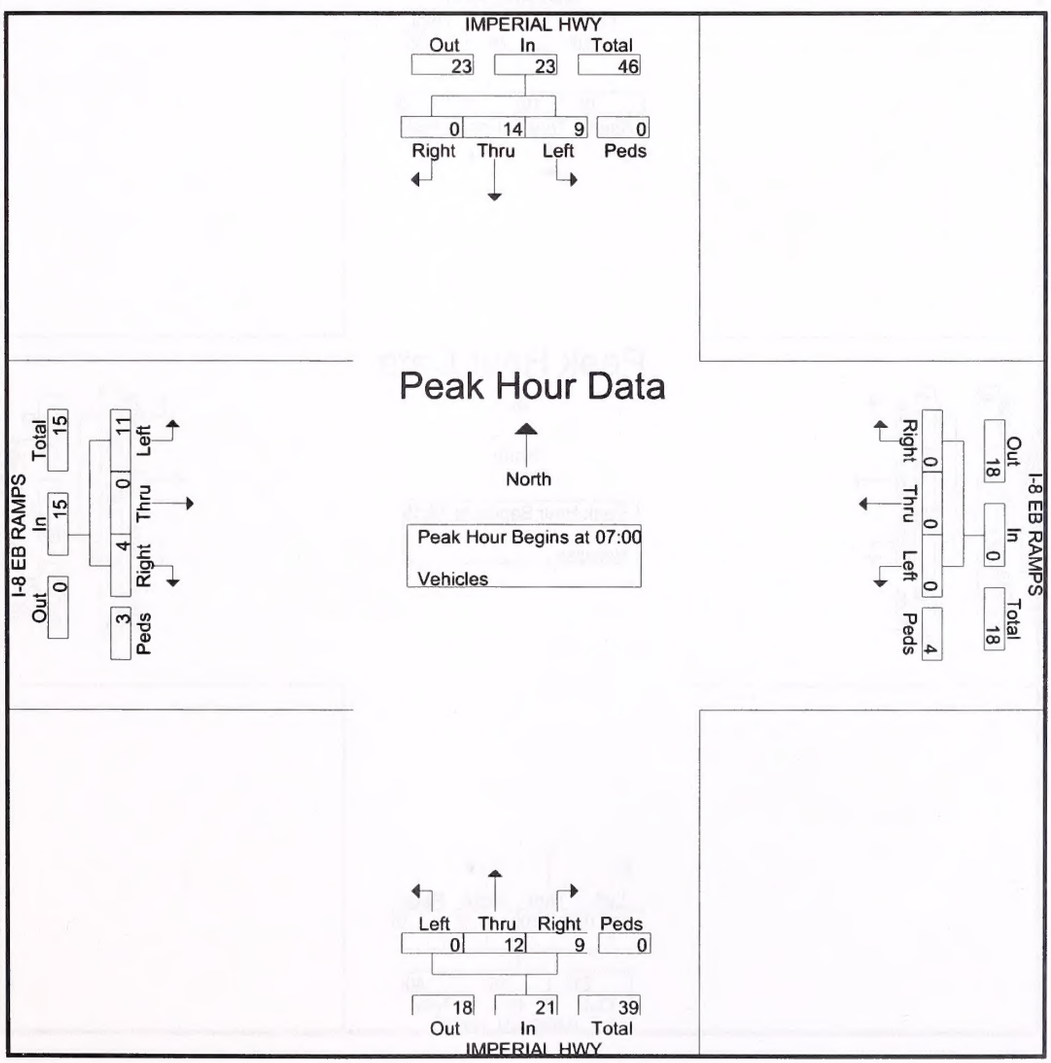


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.03.IMPERIAL HWY.I-8 EB RAMPS
Site Code : 00000000
Start Date : 12/7/2010
Page No : 2

	IMPERIAL HWY Southbound					I-8 EB RAMPS Westbound					IMPERIAL HWY Northbound					I-8 EB RAMPS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	1	4	0	0	5	0	0	0	1	1	0	**4**	2	0	**6**	**6**	0	0	1	**7**	19
07:15	**5**	**6**	0	0	**11**	0	0	0	**2**	**2**	0	2	2	0	4	3	0	**2**	0	5	**22**
07:30	3	3	0	0	6	0	0	0	0	0	0	3	2	0	5	2	0	2	**2**	6	17
07:45	0	1	0	0	1	0	0	0	1	1	0	3	**3**	0	6	0	0	0	0	0	8
Total Volume	9	14	0	0	23	0	0	0	4	4	0	12	9	0	21	11	0	4	3	18	66
% App. Total	39.1	60.9	0	0		0	0	0	100		0	57.1	42.9	0		61.1	0	22.2	16.7		
PHF	.450	.583	.000	.000	.523	.000	.000	.000	.500	.500	.000	.750	.750	.000	.875	.458	.000	.500	.375	.643	.750

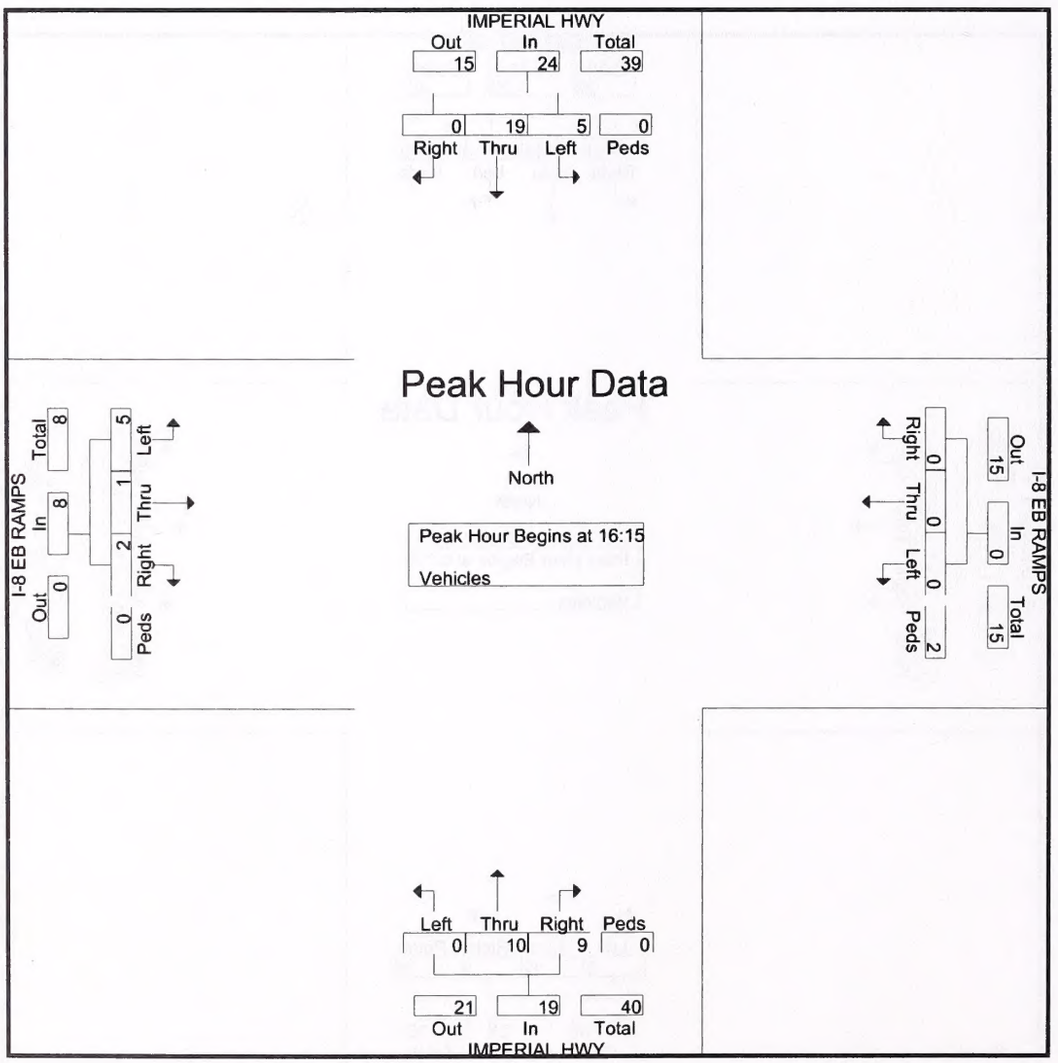


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.03.IMPERIAL HWY.I-8 EB RAMPS
Site Code : 00000000
Start Date : 12/7/2010
Page No : 3

	IMPERIAL HWY Southbound					I-8 EB RAMPS Westbound					IMPERIAL HWY Northbound					I-8 EB RAMPS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	**2**	4	0	0	6	0	0	0	**1**	**1**	0	1	3	0	4	**3**	0	**1**	0	**4**	**15**
16:30	0	4	0	0	4	0	0	0	1	1	0	**3**	**4**	0	**7**	0	**1**	0	0	1	13
16:45	1	5	0	0	6	0	0	0	0	0	0	3	1	0	4	1	0	0	0	1	11
17:00	2	**6**	0	0	**8**	0	0	0	0	0	0	3	1	0	4	1	0	1	0	2	14
Total Volume	5	19	0	0	24	0	0	0	2	2	0	10	9	0	19	5	1	2	0	8	53
% App. Total	20.8	79.2	0	0		0	0	0	100		0	52.6	47.4	0		62.5	12.5	25	0		
PHF	.625	.792	.000	.000	.750	.000	.000	.000	.500	.500	.000	.833	.563	.000	.679	.417	.250	.500	.000	.500	.883

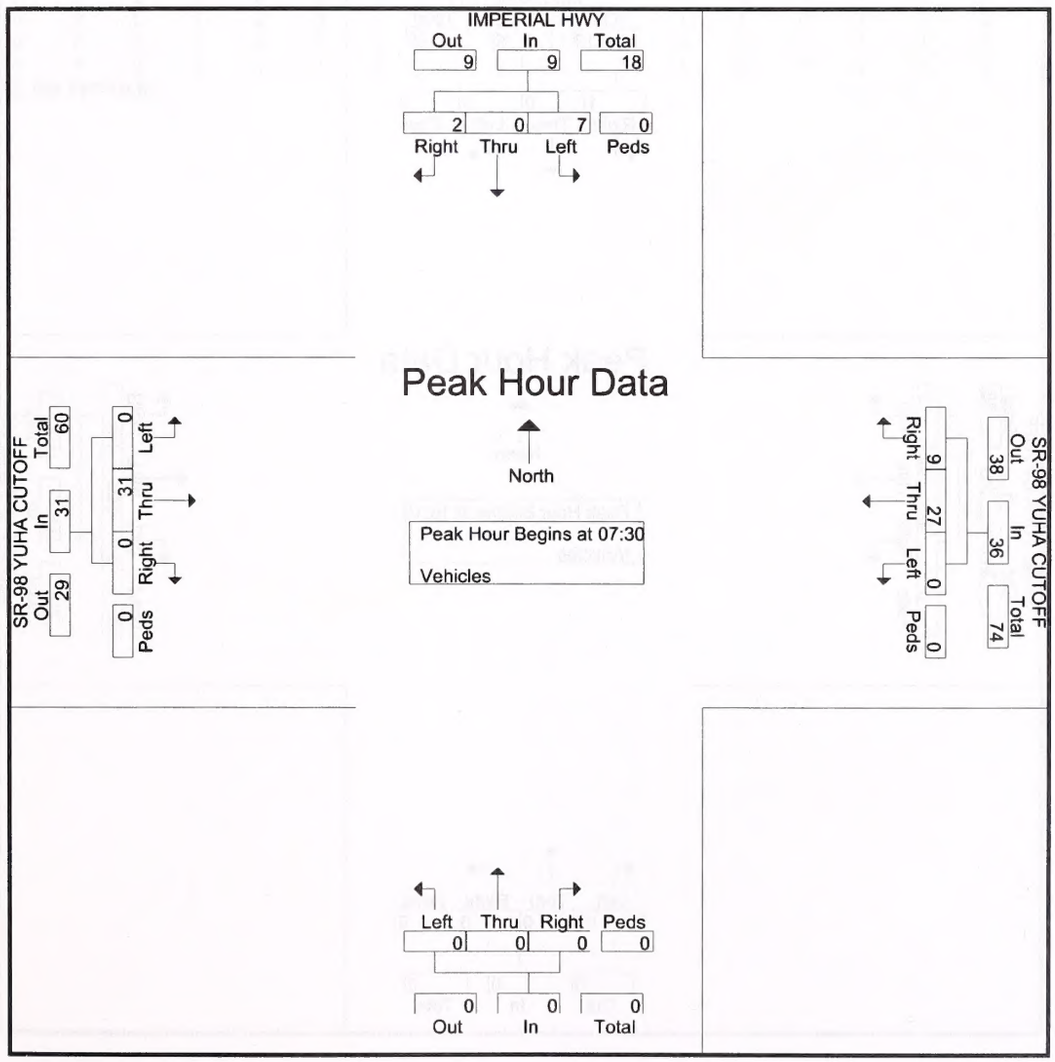


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.04.IMPERIAL HWY.SR-98 YUHA CUTOFF
Site Code : 00000000
Start Date : 12/7/2010
Page No : 2

	IMPERIAL HWY Southbound					SR-98 YUHA CUTOFF Westbound					Northbound					SR-98 YUHA CUTOFF Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	2	0	**2**	0	**4**	0	**11**	0	0	11	0	0	0	0	0	0	8	0	0	8	23
07:45	**0**	0	0	0	0	0	2	**3**	0	5	0	0	0	0	0	0	4	0	0	4	9
08:00	**3**	0	0	0	3	0	3	3	0	6	0	0	0	0	0	0	8	0	0	8	17
08:15	2	0	0	0	2	0	11	3	0	**14**	0	0	0	0	0	0	**11**	0	0	**11**	**27**
Total Volume	7	0	2	0	9	0	27	9	0	36	0	0	0	0	0	0	31	0	0	31	76
% App. Total	77.8	0	22.2	0		0	75	25	0		0	0	0	0		0	100	0	0		
PHF	.583	.000	.250	.000	.563	.000	.614	.750	.000	.643	.000	.000	.000	.000	.000	.000	.705	.000	.000	.705	.704

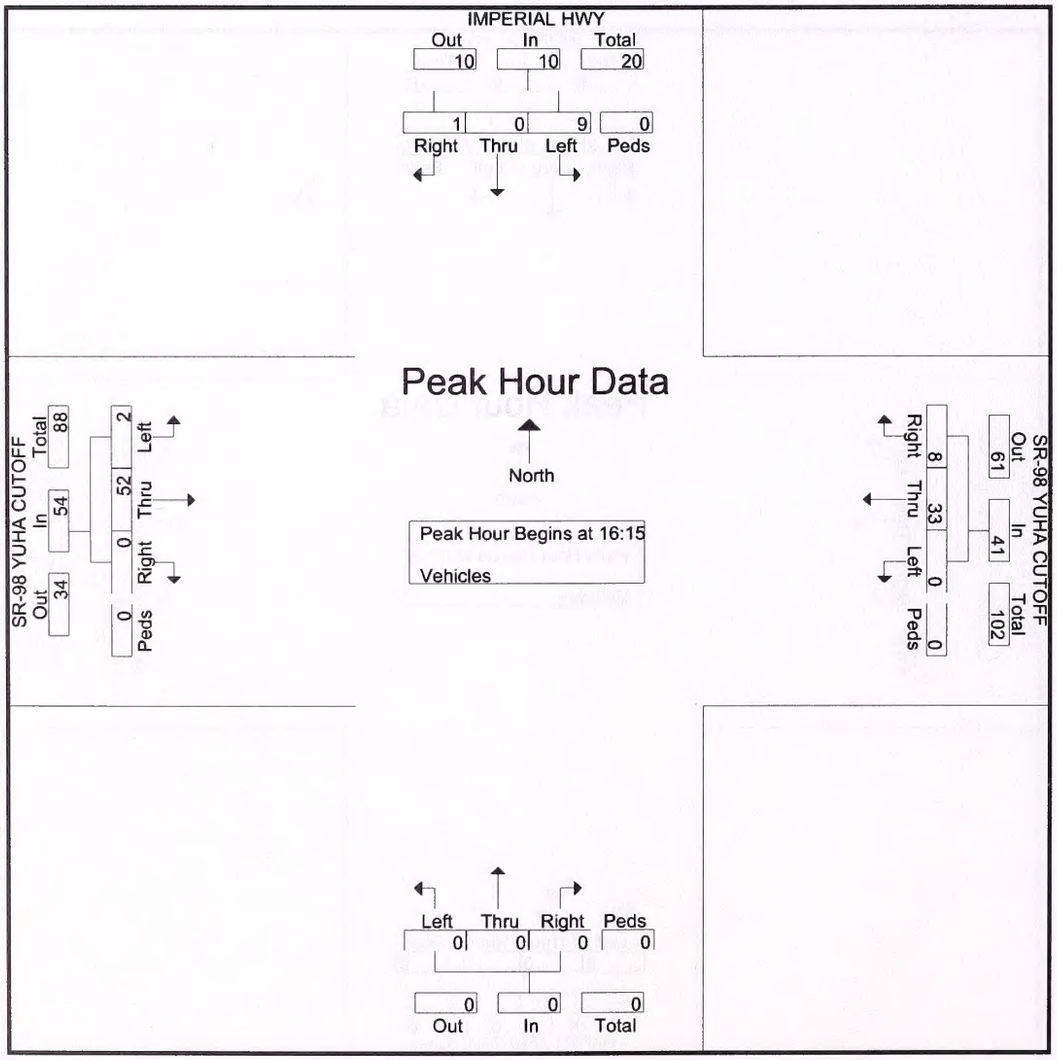


True Count

4401 Twain Ave, Suite 27
San Diego, CA 92120

File Name : 1099.04.IMPERIAL HWY.SR-98 YUHA CUTOFF
Site Code : 00000000
Start Date : 12/7/2010
Page No : 3

	IMPERIAL HWY Southbound					SR-98 YUHA CUTOFF Westbound					Northbound					SR-98 YUHA CUTOFF Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	1	0	0	0	1	0	8	**3**	0	11	0	0	0	0	0	**1**	12	0	0	13	25
16:30	**3**	0	0	0	**3**	0	**12**	3	0	**15**	0	0	0	0	0	1	**18**	0	0	**19**	**37**
16:45	2	0	**1**	0	3	0	10	2	0	12	0	0	0	0	0	0	9	0	0	9	24
17:00	3	0	0	0	3	0	3	0	0	3	0	0	0	0	0	0	13	0	0	13	19
Total Volume	9	0	1	0	10	0	33	8	0	41	0	0	0	0	0	2	52	0	0	54	105
% App. Total	90	0	10	0		0	80.5	19.5	0		0	0	0	0		3.7	96.3	0	0		
PHF	.750	.000	.250	.000	.833	.000	.688	.667	.000	.683	.000	.000	.000	.000	.000	.500	.722	.000	.000	.711	.709



MetroCount Traffic Executive
Vehicle Counts

342 -- English (ENU)

Datasets:

Site:	**[1099.01] WEST EVAN HEWES HWY (EAST OF IMPERIAL HWY) EASTBOUND**
Direction:	6 - West bound A>B, East bound B>A. **Lane:** 0
Survey Duration:	15:14 Monday, December 06, 2010 => 14:15 Wednesday, December 08, 2010
File:	1099.0108Dec2010.EC0 (Regular)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Tuesday, December 07, 2010 => 0:00 Wednesday, December 08, 2010**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Direction:	East (bound)
In profile:	Vehicles = 123 / 426 (28.87%)

*** Tuesday, December 07, 2010 - Total=123, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
0	**1**	**1**	**0**	**0**	**6**	**9**	**15**	**7**	**11**	**8**	**14**	**8**	**12**	**11**	**6**	**6**	**4**	**2**	**0**	**0**	**0**	**1**	**1**	
0	0	0	0	0	1	3	**6**	0	3	1	2	1	4	6	3	3	1	0	0	0	0	1	1	-
0	0	0	0	0	0	1	**3**	3	2	5	5	0	3	1	1	0	1	1	0	0	0	0	0	-
0	1	1	0	0	3	2	**4**	0	1	1	3	4	2	3	2	0	1	1	0	0	0	0	0	-
0	0	0	0	0	2	**3**	2	4	5	1	4	3	3	1	0	3	1	0	0	0	0	0	0	-

AM Peak 0645 - 0745 (16), AM PHF=0.67

MetroCount Traffic Executive
Vehicle Counts

343 -- English (ENU)

Datasets:

Site:	**[1099.01] WEST EVAN HEWES HWY (EAST OF IMPERIAL HWY) WESTBOUND**
Direction:	6 - West bound A>B, East bound B>A. **Lane:** 0
Survey Duration:	15:14 Monday, December 06, 2010 => 14:15 Wednesday, December 08, 2010
File:	1099.0108Dec2010.EC0 (Regular)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Tuesday, December 07, 2010 => 0:00 Wednesday, December 08, 2010**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Direction:	West (bound)
In profile:	Vehicles = 129 / 426 (30.28%)

* **Tuesday, December 07, 2010 - Total=129, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
2	**1**	**1**	**0**	**0**	**2**	**1**	**6**	**4**	**4**	**8**	**13**	**11**	**12**	**14**	**10**	**12**	**6**	**5**	**9**	**0**	**1**	**5**	**2**
1	0	0	0	0	1	1	0	1	0	1	**5**	2	3	6	2	6	1	1	3	0	1	1	1
0	0	0	0	0	1	0	3	1	1	2	**4**	3	2	3	4	2	1	1	3	0	0	1	0
0	0	1	0	0	0	0	3	0	2	0	**4**	3	3	2	3	3	2	0	3	0	0	1	0
1	1	0	0	0	0	0	0	2	1	**5**	0	3	4	3	1	1	2	3	0	0	0	2	1

AM Peak 1045 - 1145 (18), AM PHF=0.90

MetroCount Traffic Executive
Vehicle Counts

344 -- English (ENU)

Datasets:

Site:	**[1099.02] IMPERIAL HWY (I-8 EB RAMPS- SR-98 YUHA CUTOFF) NORTHBOUND**
Direction:	7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration:	15:46 Monday, December 06, 2010 => 14:16 Wednesday, December 08, 2010
File:	1099.0208Dec2010.EC0 (Base)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Tuesday, December 07, 2010 => 0:00 Wednesday, December 08, 2010**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Direction:	North (bound)
In profile:	Vehicles = 118 / 450 (26.22%)

* **Tuesday, December 07, 2010 - Total=118, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	**2**	**0**	**0**	**0**	**3**	**7**	**10**	**9**	**12**	**7**	**6**	**13**	**7**	**9**	**6**	**11**	**4**	**1**	**2**	**3**	**0**	**3**	**1**	
2	1	0	0	0	0	1	3	3	**4**	3	3	5	3	4	1	1	0	1	1	0	0	1	0	-
0	0	0	0	0	3	2	3	3	**4**	2	0	2	2	1	1	3	1	0	1	1	0	0	1	-
0	0	0	0	0	0	2	1	1	**2**	1	3	4	2	2	3	5	2	0	0	1	0	2	0	-
0	1	0	0	0	0	2	3	**2**	2	1	0	2	0	2	1	2	1	0	0	1	0	0	0	-

AM Peak 0845 - 0945 (12), AM PHF=0.75

MetroCount Traffic Executive
Vehicle Counts

345 -- English (ENU)

Datasets:

Site: **[1099.02] IMPERIAL HWY (I-8 EB RAMPS- SR-98 YUHA CUTOFF) SOUTHBOUND**
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 0
Survey Duration: 15:46 Monday, December 06, 2010 => 14:16 Wednesday, December 08, 2010
File: 1099.0208Dec2010.EC0 (Base)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: **0:00 Tuesday, December 07, 2010 => 0:00 Wednesday, December 08, 2010**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Direction: South (bound)
In profile: Vehicles = 121 / 450 (26.89%)

* **Tuesday, December 07, 2010 - Total=121, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
0	**3**	**1**	**0**	**0**	**0**	**7**	**4**	**7**	**5**	**8**	**5**	**6**	**13**	**8**	**12**	**10**	**7**	**11**	**3**	**5**	**0**	**4**	**2**	
0	0	1	0	0	0	2	**0**	3	2	2	1	3	2	2	4	2	3	4	1	1	0	0	0	-
0	2	0	0	0	0	1	**1**	2	0	1	1	1	5	3	4	2	1	2	2	0	0	2	0	-
0	1	0	0	0	0	0	**3**	1	2	4	2	0	5	1	1	3	1	1	0	2	0	1	1	-
0	0	0	0	0	0	**4**	0	1	1	1	1	2	1	2	3	3	2	4	0	2	0	1	1	-

AM Peak 0645 - 0745 (8), AM PHF=0.50

MetroCount Traffic Executive
Vehicle Counts

346 -- English (ENU)

Datasets:

Site:	**[1099.03] SR-98 YUHA CUTOFF (WEST OF IMPERIAL HWY) EASTBOUND**
Direction:	6 - West bound A>B, East bound B>A. **Lane:** 0
Survey Duration:	16:14 Monday, December 06, 2010 => 14:15 Wednesday, December 08, 2010
File:	1099.0308Dec2010.EC0 (Regular)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Tuesday, December 07, 2010 => 0:00 Wednesday, December 08, 2010**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Direction:	East (bound)
In profile:	Vehicles = 617 / 1985 (31.08%)

* **Tuesday, December 07, 2010 - Total=617, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
10	**8**	**3**	**5**	**2**	**7**	**10**	**22**	**30**	**43**	**29**	**46**	**34**	**25**	**43**	**34**	**54**	**33**	**38**	**37**	**25**	**32**	**28**	**19**	
4	2	0	3	0	1	4	8	5	9	6	7	**8**	7	8	11	10	13	6	7	7	10	11	10	-
0	2	1	2	0	2	3	4	14	12	6	**16**	7	6	11	6	15	5	9	9	6	9	2	4	-
3	3	1	0	2	2	0	7	2	8	12	**15**	10	6	13	8	19	6	11	9	7	5	10	3	-
3	1	1	0	0	2	3	3	9	14	5	**8**	9	6	11	9	10	9	12	12	5	8	5	2	-

AM Peak 1115 - 1215 (47), AM PHF=0.73

MetroCount Traffic Executive
Vehicle Counts

347 -- English (ENU)

Datasets:

Site:	**[1099.03] SR-98 YUHA CUTOFF (WEST OF IMPERIAL HWY) WESTBOUND**
Direction:	6 - West bound A>B, East bound B>A. **Lane:** 0
Survey Duration:	16:14 Monday, December 06, 2010 => 14:15 Wednesday, December 08, 2010
File:	1099.0308Dec2010.EC0 (Regular)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**0:00 Tuesday, December 07, 2010 => 0:00 Wednesday, December 08, 2010**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Direction:	West (bound)
In profile:	Vehicles = 524 / 1985 (26.40%)

*** Tuesday, December 07, 2010 - Total=524, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
4	**3**	**6**	**11**	**19**	**22**	**34**	**32**	**34**	**44**	**30**	**36**	**24**	**25**	**35**	**29**	**34**	**24**	**14**	**17**	**15**	**15**	**7**	**10**
1	1	2	1	5	5	8	14	4	**13**	7	11	8	5	14	8	5	3	5	3	4	4	2	1
1	1	2	4	6	7	11	4	13	**9**	6	7	5	8	7	6	7	7	3	5	3	3	1	5
2	0	2	3	5	4	8	11	9	**13**	10	12	6	9	8	4	11	7	4	6	4	5	2	2
0	1	0	3	3	6	7	3	8	**9**	7	6	5	3	6	11	11	7	2	3	4	3	2	2

AM Peak 0900 - 1000 (44), AM PHF=0.85

Year 2009 Freeway Volumes

Interstate 8

Postmile	Description	Back Peak Hour	Back AADT	Ahead Peak Hour	Ahead AADT
10.01	Jct. Rte. 98	1,850	13,800	1,850	12,000
11.918	Ocotillo, Imperial Hwy Interchange	1,850	12,000	1,800	12,200
23.48	Dunaway Rd	1,800	12,200	1,800	12,200

APPENDIX B

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS - EXISTING



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	1	1	6	0	0	12	18	11	4	12	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	7	0	0	13	20	12	4	13	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	74	80	14	76	74	26	14			32		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	74	80	14	76	74	26	14			32		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	99			100		
cM capacity (veh/h)	909	802	1066	905	807	1050	1604			1581		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	7	45	18
Volume Left	1	7	13	4
Volume Right	1	0	12	1
cSH	913	905	1604	1581
Volume to Capacity	0.00	0.01	0.01	0.00
Queue Length 95th (ft)	0	1	1	0
Control Delay (s)	9.0	9.0	2.2	1.7
Lane LOS	A	A	A	A
Approach Delay (s)	9.0	9.0	2.2	1.7
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱		↰			↳	
Volume (veh/h)	0	0	0	8	1	11	4	19	0	0	15	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	9	1	12	4	21	0	0	16	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	54	48	18	48	50	21	21			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	54	48	18	48	50	21	21			21		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	100			100		
cM capacity (veh/h)	930	841	1060	951	839	1057	1595			1595		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	25	21
Volume Left	9	4	0
Volume Right	12	0	4
cSH	1922	1595	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	1.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	1.3	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	14.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	0	4	0	0	0	0	12	9	9	14	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	4	0	0	0	0	13	10	10	15	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	53	58	15	55	53	18	15			23		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	53	58	15	55	53	18	15			23		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			99		
cM capacity (veh/h)	942	828	1064	935	833	1061	1603			1592		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	23	25
Volume Left	12	0	10
Volume Right	4	10	0
cSH	1284	1700	1592
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	2.9
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	2.9
Approach LOS	A		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	31	27	9	7	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	29	10	8	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	39				68	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				68	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1571				937	1039

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	39	10
Volume Left	0	0	8
Volume Right	0	10	2
cSH	1571	1700	958
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	1	1	6	0	4	0	18	5	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	7	0	4	0	20	5	0	10	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	36	35	10	34	32	22	10			25		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	36	35	10	34	32	22	10			25		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	965	858	1072	971	861	1055	1610			1589		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	11	25	10
Volume Left	0	7	0	0
Volume Right	1	4	5	0
cSH	953	1003	1610	1589
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (ft)	0	1	0	0
Control Delay (s)	8.8	8.6	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	8.8	8.6	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	15.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Volume (veh/h)	0	0	0	14	5	10	3	12	0	0	8	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	15	5	11	3	13	0	0	9	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	41	33	13	33	37	13	17			13		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	41	33	13	33	37	13	17			13		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	99	99	100			100		
cM capacity (veh/h)	947	858	1067	973	854	1067	1600			1605		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	16	17
Volume Left	15	3	0
Volume Right	11	0	9
cSH	1437	1600	1700
Volume to Capacity	0.02	0.00	0.01
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.7	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	1.5	0.0
Approach LOS	A		

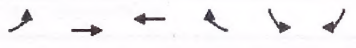
Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	1	2	0	0	0	0	10	9	5	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	1	2	0	0	0	0	11	10	5	21	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	47	52	21	49	47	16	21			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	47	52	21	49	47	16	21			21		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	100	100			100		
cM capacity (veh/h)	951	836	1057	946	841	1064	1595			1595		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	20	21	26
Volume Left	16	0	5
Volume Right	2	10	0
cSH	1062	1700	1595
Volume to Capacity	0.02	0.01	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	1.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	1.5
Approach LOS	A		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	15.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	52	33	8	9	1						
Sign Control		Free	Free		Stop							
Grade		0%	0%		0%							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	2	57	36	9	10	1						
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type		None	None									
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	45				101	40						
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	45				101	40						
tC, single (s)	4.1				6.4	6.2						
tC, 2 stage (s)												
tF (s)	2.2				3.5	3.3						
p0 queue free %	100				99	100						
cM capacity (veh/h)	1564				896	1031						

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	59	45	11
Volume Left	2	0	10
Volume Right	0	9	1
cSH	1564	1700	996
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.0
Approach LOS			A

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	14.4%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX C

CONSTRUCTION TRUCK / EMPLOYEE MATRIX & EXHIBIT 20-9, PASSENGER-CAR EQUIVALENTS ON TWO WAY AND DIRECTIONAL SEGMENTS IN THE HIGHWAY CAPACITY MANUAL, 2000

Construction Traffic Estimate

Description	From	Duration	Quantity	Total Average Traffic During Phase I (Weeks 1 - 52)		Total Average Traffic During Phase I and II Overlap (Weeks 42 - 52)	
				Employees	HHDT	Employees	HHDT
Phase I							
Management							
Employees	From El Centro (E) & San Diego (W)	Weeks 1 - 52	18 Employees	18		18	
Roads/Foundation Construction							
Employees	From El Centro (E) & San Diego (W)	Weeks 1 - 19	43 Employees	43			
Water for Road Maintenance and Dust Control	From Pine Valley (WNW)	Weeks 1 - 19	2 HHDT		2		
Water for Concrete Foundation	From Pine Valley (WNW)	Weeks 1 - 19	4 HHDT		4		
Gravel for Roads	From Ocotillo	Weeks 1 - 19	30 HHDT		30		
Concrete Foundation Aggregate	From near Thermal, California	Weeks 1 - 19	35 HHDT		35		
Concrete Foundation Sand	From Ocotillo	Weeks 1 - 19	-				
Concrete Foundation Cement	From Victorville (NNW)	Weeks 1 - 19	6 HHDT		6		
Electrical							
Employees [a]	From El Centro (E) & San Diego (W)	Weeks 13 - 41	24 Employees	24			
Water for Road Maintenance and Dust Control	From Pine Valley (WNW)	Weeks 13 - 41	4 HHDT				
Erection							
Employees [b]	From El Centro (E) & San Diego (W)	Weeks 19 - 39	43 Employees	43			
WTG Delivery	From Texas (E)	Weeks 19 - 39	18 HHDT				
Total Phase I				**128**	**77**	**18**	**0**
Phase II				**Total Average Traffic During Phase II (Weeks 42 - 68)**			
Management							
Employees	From El Centro (E) & San Diego (W)	Weeks 42 - 68	11 Employees	11		11	
Roads/Foundation Construction							
Employees	From El Centro (E) & San Diego (W)	Weeks 43 - 51	26 Employees	26			
Water for Road Maintenance and Dust Control	From Pine Valley (WNW)	Weeks 43 - 51	2 HHDT		2		
Water for Concrete Foundation	From Pine Valley (WNW)	Weeks 43 - 51	4 HHDT		4		
Gravel for Roads	From Ocotillo	Weeks 43 - 51	29 HHDT		29		
Concrete Foundation Aggregate	From near Thermal, California	Weeks 43 - 51	34 HHDT		34		
Concrete Foundation Sand	From Ocotillo	Weeks 43 - 51					
Concrete Foundation Cement	From Victorville (NNW)	Weeks 43 - 51	6 HHDT		6		
Electrical							
Employees [a]	From El Centro (E) & San Diego (W)	Weeks 47 - 65	14 Employees	14		14	
Water for Road Maintenance and Dust Control	From Pine Valley (WNW)	Weeks 47 - 65	3 HHDT				
Erection							
Employees [b]	From El Centro (E) & San Diego (W)	Weeks 51 - 63	26 Employees	26			
WTG Delivery	From Texas (E)	Weeks 51 - 63	18 HHDT				
Total Phase II				**51**	**75**	**25**	**0**

Construction Traffic Estimate

Description	From	Duration	Quantity	Total Average Traffic During Phase I (Weeks 1 - 52)		Total Average Traffic During Phase I and II Overlap (Weeks 42 - 52)	
				Employees	HHDT	Employees	HHDT
O&M Complex				**Total Average Traffic During O&M Complex (Weeks 16 - 48)**			
Employees	From El Centro (E) & San Diego (W)	Weeks 16 - 24	13 Passenger	13			
Water for Concrete Foundations (only I week)	From Pine Valley (WNW)	Weeks 16 - 24	1 HHDT				
Aggregate for Concrete Foundations (only I week)	From near Thermal, California	Weeks 16 - 24	6 HHDT		1		
Concrete Foundation Sand	From Ocotillo	Weeks 16 - 24	HHDT				
Cement for Concrete Foundations (only I week)	From Victorville (NNW)	Weeks 16 - 24	1 HHDT				
Substation							
Employees (varies between 5 and 10)	From El Centro (E) & San Diego (W)	Weeks 24 - 48	7 Passenger	7			
Water for Concrete Foundations (only I week)	From Pine Valley (WNW)	Weeks 24 - 48	1 HHDT				
Aggregate for Concrete Foundations (only I week)	From near Thermal, California	Weeks 24 - 48	10 HHDT		1		
Concrete Foundation Sand	From Ocotillo	Weeks 24 - 48	HHDT				
Cement for Concrete Foundations (only I week)	From Victorville (NNW)	Weeks 24 - 48	5 HHDT				
Total O&M Complex				**20**	**2**	**0**	**0**
Miscellaneous				**Total Average Traffic During O&M Complex (Weeks 1 - 68)**			
Miscellaneous Deliveries/Crew Trucks	From San Diego (W)	Weeks 1 - 68	5 Delivery		5		
Fuel Deliveries	From El Centro (E)	Weeks 1 - 68	1 HHDT		1		
Total Miscellaneous				**0**	**6**	**0**	**0**

Passenger-car equivalents for extended two-way segments are determined from Exhibit 20-9 for estimating speeds and from Exhibit 20-10 for estimating percent time-spent-following. The terrain of extended two-way segments should be categorized as level or rolling.

EXHIBIT 20-9. PASSENGER-CAR EQUIVALENTS FOR TRUCKS AND RVS TO DETERMINE SPEEDS ON TWO-WAY AND DIRECTIONAL SEGMENTS

Vehicle Type	Range of Two-Way Flow Rates (pc/h)	Range of Directional Flow Rates (pc/h)	Type of Terrain	
			Level	Rolling
Trucks, E_T	0–600	0–300	1.7	2.5
	> 600–1,200	> 300–600	1.2	1.9
	> 1,200	> 600	1.1	1.5
RVs, E_R	0–600	0–300	1.0	1.1
	> 600–1,200	> 300–600	1.0	1.1
	> 1,200	> 600	1.0	1.1

EXHIBIT 20-10. PASSENGER-CAR EQUIVALENTS FOR TRUCKS AND RVS TO DETERMINE PERCENT TIME-SPENT-FOLLOWING ON TWO-WAY AND DIRECTIONAL SEGMENTS

Vehicle Type	Range of Two-Way Flow Rates (pc/h)	Range of Directional Flow Rates (pc/h)	Type of Terrain	
			Level	Rolling
Trucks, E_T	0–600	0–300	1.1	1.8
	> 600–1,200	> 300–600	1.1	1.5
	> 1,200	> 600	1.0	1.0
RVs, E_R	0–600	0–300	1.0	1.0
	> 600–1,200	> 300–600	1.0	1.0
	> 1,200	> 600	1.0	1.0

Level Terrain

Level terrain is any combination of horizontal and vertical alignment permitting heavy vehicles to maintain approximately the same speed as passenger cars; this generally includes short grades of no more than 1 or 2 percent.

Rolling Terrain

Rolling terrain is any combination of horizontal and vertical alignment causing heavy vehicles to reduce their speeds substantially below those of passenger cars, but not to operate at crawl speeds for any significant length of time or at frequent intervals; generally, this includes short- and medium-length grades of no more than 4 percent. Segments with substantial lengths of more than a 4 percent grade should be analyzed with the specific grade procedure for directional segments.

Heavy-Vehicle Adjustment Factor

Once values for E_T and E_R have been determined, the adjustment factor for heavy vehicles is computed using Equation 20-4.

$$f_{HV} = \frac{1}{1 + P_T(E_T - 1) + P_R(E_R - 1)} \quad (20\text{-}4)$$

where

P_T = proportion of trucks in the traffic stream, expressed as a decimal;
P_R = proportion of RVs in the traffic stream, expressed as a decimal;

APPENDIX D

CUMULATIVE PROJECTS INFORMATION

Coyote Wells Specific Plan Trip Generation	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Weekday Trip Generation							
Coyote Wells Specific Plan Phase I	538	102	32	134	32	102	134
Coyote Wells Specific Plan Phase II	2,648	243	106	349	122	251	373
Coyote Wells Specific Plan Phase III	4,391	555	199	754	217	565	782
Weekend Trip Generation							
Coyote Wells Specific Plan Phase I	750	137	50	188	50	138	188
Coyote Wells Specific Plan Phase II	3,073	314	141	455	157	322	479
Coyote Wells Specific Plan Phase III	5,266	689	283	973	301	699	1,001

Notes:
Some error due to rounding
1 Trip rate shown for Law Enforcement Training Facility is based on SANDAG "Military" with a more conservation estimate of PM peak hour travel to reflect the limited off-site trips due to the wide range of amenities provided on-site
2 Law Enforcement Training Participants and Full Time Employee (FTE) from Coyote Wells Specific Plan
3 Similar to the Law Enforcement Training Facility, trip generation rates for the Motorsports Facility is based on SANDAG "Military" with more conservative estimate of daily trips and modified estimate of peak hour movements to reflect the greater likelihood of Motorsports Facility Users to visit off-site facilities than Law Enforcement Training Facility Participants
4 Motorsports Facility Users and FTE (including Resort Hotel) from Coyote Wells Specific Plan
5 Trip rate per SANDAG "Gasoline with Food Mart"
6 Trip rate per SANDAG "Fast Food (without drive-through)"
7 Trip rate per SANDAG "Storage"
8 Trip rate per SANDAG "Estate, Urban or Rural (average 1-2 DU/acre)"
Source: PMC, 2009

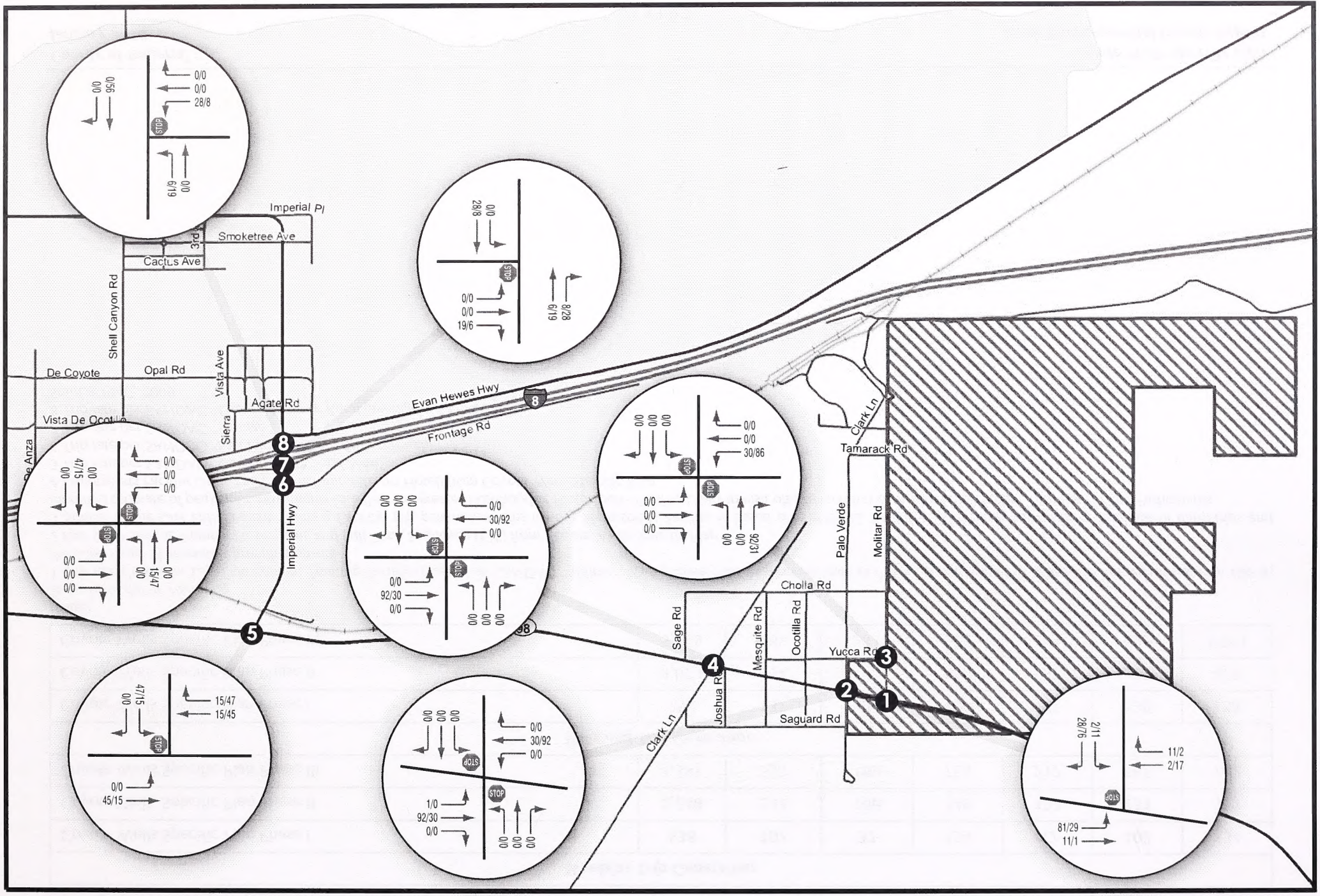


Figure 4.13-5

Phase I Project Weekday Traffic Volumes AM/PM Peak Hours

PMC®

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – BASELINE WITHOUT CONSTRUCTION TRAFFIC

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	1	1	6	0	0	13	19	12	4	13	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	7	0	0	14	21	13	4	14	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	79	85	15	80	79	27	15			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	79	85	15	80	79	27	15			34		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	99			100		
cM capacity (veh/h)	902	796	1065	898	802	1048	1603			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	7	48	20
Volume Left	1	7	14	4
Volume Right	1	0	13	1
cSH	908	898	1603	1578
Volume to Capacity	0.00	0.01	0.01	0.00
Queue Length 95th (ft)	0	1	1	0
Control Delay (s)	9.0	9.0	2.2	1.6
Lane LOS	A	A	A	A
Approach Delay (s)	9.0	9.0	2.2	1.6
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	13.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱		↰			↱	
Volume (veh/h)	0	0	0	8	1	12	4	20	0	0	16	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	9	1	13	4	22	0	0	17	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	57	50	20	50	52	22	22			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57	50	20	50	52	22	22			22		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	100			100		
cM capacity (veh/h)	925	839	1058	948	837	1055	1594			1594		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	26	22
Volume Left	9	4	0
Volume Right	13	0	4
cSH	1847	1594	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.6	1.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	1.2	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	14.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	0	4	0	0	0	0	13	9	9	15	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	4	0	0	0	0	14	10	10	16	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	55	60	16	57	55	19	16			24		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	55	60	16	57	55	19	16			24		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			99		
cM capacity (veh/h)	938	826	1063	932	831	1059	1601			1591		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	24	26
Volume Left	13	0	10
Volume Right	4	10	0
cSH	1251	1700	1591
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	2.8
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	2.8
Approach LOS	A		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	33	28	9	7	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	30	10	8	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				71	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				71	35
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1569				933	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	36	40	10
Volume Left	0	0	8
Volume Right	0	10	2
cSH	1569	1700	954
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	1	1	6	0	4	0	19	5	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	7	0	4	0	21	5	0	10	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	38	36	10	35	33	23	10			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	38	36	10	35	33	23	10			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	964	857	1072	970	859	1053	1610			1588		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	11	26	10
Volume Left	0	7	0	0
Volume Right	1	4	5	0
cSH	952	1001	1610	1588
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (ft)	0	1	0	0
Control Delay (s)	8.8	8.6	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	8.8	8.6	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	15.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱		↰			↱	
Volume (veh/h)	0	0	0	15	5	11	3	13	0	0	8	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	16	5	12	3	14	0	0	9	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	42	34	13	34	38	14	17			14		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	42	34	13	34	38	14	17			14		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	99	99	100			100		
cM capacity (veh/h)	944	857	1067	972	852	1066	1600			1604		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	17	17
Volume Left	16	3	0
Volume Right	12	0	9
cSH	1460	1600	1700
Volume to Capacity	0.02	0.00	0.01
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.7	1.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	1.4	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	1	2	0	0	0	0	11	9	5	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	1	2	0	0	0	0	12	10	5	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	49	54	22	51	49	17	22			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49	54	22	51	49	17	22			22		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	100	100	100	100			100		
cM capacity (veh/h)	948	834	1055	943	839	1062	1594			1594		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	22	27
Volume Left	17	0	5
Volume Right	2	10	0
cSH	1052	1700	1594
Volume to Capacity	0.02	0.01	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.8	0.0	1.5
Lane LOS	A		A
Approach Delay (s)	8.8	0.0	1.5
Approach LOS	A		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	15.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	2	55	35	8	9	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	60	38	9	10	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	47				107	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	47				107	42
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1561				890	1028

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	62	47	11
Volume Left	2	0	10
Volume Right	0	9	1
cSH	1561	1700	989
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.0
Approach LOS			A

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	14.5%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX F

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – BASELINE + CONSTRUCTION TRAFFIC

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	1	1	38	0	0	13	19	163	4	13	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	41	0	0	14	21	177	4	14	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	161	249	15	162	161	109	15			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	161	249	15	162	161	109	15			198		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	100	100	99			100		
cM capacity (veh/h)	797	646	1065	793	722	944	1603			1375		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	41	212	20
Volume Left	1	41	14	4
Volume Right	1	0	177	1
cSH	802	793	1603	1375
Volume to Capacity	0.00	0.05	0.01	0.00
Queue Length 95th (ft)	0	4	1	0
Control Delay (s)	9.5	9.8	0.6	1.7
Lane LOS	A	A	A	A
Approach Delay (s)	9.5	9.8	0.6	1.7
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	24.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱		↰			↱	
Volume (veh/h)	0	0	0	22	1	134	5	49	0	0	43	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	24	1	146	5	53	0	0	47	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	189	116	52	116	121	53	57			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	189	116	52	116	121	53	57			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	86	100			100		
cM capacity (veh/h)	658	772	1016	859	767	1014	1548			1552		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	171	59	57
Volume Left	24	5	0
Volume Right	146	0	10
cSH	1188	1548	1700
Volume to Capacity	0.14	0.00	0.03
Queue Length 95th (ft)	13	0	0
Control Delay (s)	9.2	0.7	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	0.7	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	0	8	0	0	0	0	14	12	36	29	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	0	9	0	0	0	0	15	13	39	32	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	132	138	32	136	132	22	32			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	132	138	32	136	132	22	32			28		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	99	100	100	100	100			98		
cM capacity (veh/h)	825	734	1042	813	740	1055	1581			1585		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	54	28	71
Volume Left	46	0	39
Volume Right	9	13	0
cSH	982	1700	1585
Volume to Capacity	0.06	0.02	0.02
Queue Length 95th (ft)	4	0	2
Control Delay (s)	9.4	0.0	4.1
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	4.1
Approach LOS	A		

Intersection Summary				
Average Delay	5.3			
Intersection Capacity Utilization	20.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	33	28	9	7	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	36	30	10	8	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	40				80	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				80	35
tC, single (s)	4.1				*9.0	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1569				869	1037

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	40	40	29
Volume Left	4	0	8
Volume Right	0	10	22
cSH	1569	1700	988
Volume to Capacity	0.00	0.02	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.8	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	0.8	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	15.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
1: W. Evan Hewes Highway & Imperial Highway

Baseline + Construction PM
3/14/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1	1	157	0	4	0	19	37	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	171	0	4	0	21	40	0	10	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	55	71	10	52	51	41	10			61		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	55	71	10	52	51	41	10			61		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	82	100	100	100			100		
cM capacity (veh/h)	939	820	1072	945	841	1030	1610			1542		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	175	61	10
Volume Left	0	171	0	0
Volume Right	1	4	40	0
cSH	929	947	1610	1542
Volume to Capacity	0.00	0.18	0.00	0.00
Queue Length 95th (ft)	0	17	0	0
Control Delay (s)	8.9	9.7	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	8.9	9.7	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
2: I-8 WB Ramps & Imperial Highway

Baseline + Construction PM
3/14/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	18	5	38	7	18	0	0	130	37
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	20	5	41	8	20	0	0	141	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	220	196	161	196	216	20	182			20		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220	196	161	196	216	20	182			20		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	99	96	99			100		
cM capacity (veh/h)	701	695	884	760	678	1058	1394			1597		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	66	27	182
Volume Left	20	8	0
Volume Right	41	0	40
cSH	1699	1394	1700
Volume to Capacity	0.04	0.01	0.11
Queue Length 95th (ft)	3	0	0
Control Delay (s)	9.1	2.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	2.2	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	19.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	1	3	0	0	0	0	15	23	127	23	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	1	3	0	0	0	0	16	25	138	25	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	330	342	25	332	330	29	25			41		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330	342	25	332	330	29	25			41		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	100	100	100	100	100			91		
cM capacity (veh/h)	581	529	1051	577	537	1046	1589			1568		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	28	41	163
Volume Left	24	0	138
Volume Right	3	25	0
cSH	655	1700	1568
Volume to Capacity	0.04	0.02	0.09
Queue Length 95th (ft)	3	0	7
Control Delay (s)	11.1	0.0	6.5
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	6.5
Approach LOS	B		

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	24.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	20	55	35	8	9	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	60	38	9	10	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	47				146	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	47				146	42
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1561				835	1028

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	82	47	15
Volume Left	22	0	10
Volume Right	0	9	5
cSH	1561	1700	895
Volume to Capacity	0.01	0.03	0.02
Queue Length 95th (ft)	1	0	1
Control Delay (s)	2.0	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	2.0	0.0	9.1
Approach LOS			A

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	20.7%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX G

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – BASELINE + CONSTRUCTION TRAFFIC + CUMULATIVE PROJECTS TRAFFIC

HCM Unsignalized Intersection Capacity Analysis — Baseline + Construction + Cumulative AM
1: W. Evan Hewes Highway & Imperial Highway
3/14/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	1	1	38	0	0	13	19	163	4	13	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	41	0	0	14	21	177	4	14	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	161	249	15	162	161	109	15			198		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	161	249	15	162	161	109	15			198		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	100	100	99			100		
cM capacity (veh/h)	797	646	1065	793	722	944	1603			1375		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	3	41	212	20
Volume Left	1	41	14	4
Volume Right	1	0	177	1
cSH	802	793	1603	1375
Volume to Capacity	0.00	0.05	0.01	0.00
Queue Length 95th (ft)	0	4	1	0
Control Delay (s)	9.5	9.8	0.6	1.7
Lane LOS	A	A	A	A
Approach Delay (s)	9.5	9.8	0.6	1.7
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	24.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis — Baseline + Construction + Cumulative AM
2: I-8 WB Ramps & Imperial Highway
3/14/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰	↱		↰			↱	
Volume (veh/h)	0	0	0	50	1	134	11	49	0	0	43	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	54	1	146	12	53	0	0	47	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	202	129	52	129	134	53	57			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	202	129	52	129	134	53	57			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	94	100	86	99			100		
cM capacity (veh/h)	643	756	1016	839	751	1014	1548			1552		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	201	65	57
Volume Left	54	12	0
Volume Right	146	0	10
cSH	1400	1548	1700
Volume to Capacity	0.14	0.01	0.03
Queue Length 95th (ft)	13	1	0
Control Delay (s)	9.3	1.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	1.4	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	0	27	0	0	0	0	20	20	36	57	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	0	29	0	0	0	0	22	22	39	62	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	173	184	62	187	173	33	62			43		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	173	184	62	187	173	33	62			43		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	97	100	100	100	100			97		
cM capacity (veh/h)	775	693	1003	736	702	1041	1541			1565		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	75	43	101
Volume Left	46	0	39
Volume Right	29	22	0
cSH	1273	1700	1565
Volume to Capacity	0.06	0.03	0.03
Queue Length 95th (ft)	5	0	2
Control Delay (s)	9.5	0.0	3.0
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	3.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	78	43	24	54	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	85	47	26	59	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	73				153	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73				153	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	98
cM capacity (veh/h)	1527				836	1006

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	89	73	80
Volume Left	4	0	59
Volume Right	0	26	22
cSH	1527	1700	876
Volume to Capacity	0.00	0.04	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.4	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis — Baseline + Construction + Cumulative PM
1: W. Evan Hewes Highway & Imperial Highway — 3/15/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	1	1	157	0	4	0	19	37	0	65	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	1	171	0	4	0	21	40	0	71	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	116	132	71	113	111	41	71			61		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	116	132	71	113	111	41	71			61		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	80	100	100	100			100		
cM capacity (veh/h)	857	759	992	862	779	1030	1530			1542		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	2	175	61	71
Volume Left	0	171	0	0
Volume Right	1	4	40	0
cSH	860	866	1530	1542
Volume to Capacity	0.00	0.20	0.00	0.00
Queue Length 95th (ft)	0	19	0	0
Control Delay (s)	9.2	10.2	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	9.2	10.2	0.0	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	25.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis — Baseline + Construction + Cumulative PM
2: I-8 WB Ramps & Imperial Highway — 3/15/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕		↕			↕	
Volume (veh/h)	0	0	0	26	5	38	26	18	0	0	186	37
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	28	5	41	28	20	0	0	202	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						2						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	322	298	222	298	318	20	242			20		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	298	222	298	318	20	242			20		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	99	96	98			100		
cM capacity (veh/h)	592	601	817	643	585	1058	1324			1597		

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	75	48	242
Volume Left	28	28	0
Volume Right	41	0	40
cSH	1411	1324	1700
Volume to Capacity	0.05	0.02	0.14
Queue Length 95th (ft)	4	2	0
Control Delay (s)	9.6	4.7	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	4.7	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	1	9	0	0	0	0	34	51	127	31	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	1	10	0	0	0	0	37	55	138	34	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)			2									
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	374	402	34	380	374	65	34			92		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	374	402	34	380	374	65	34			92		
tC, single (s)	*7.5	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	99	100	100	100	100			91		
cM capacity (veh/h)	521	487	1040	531	505	999	1578			1502		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	35	92	172
Volume Left	24	0	138
Volume Right	10	55	0
cSH	722	1700	1502
Volume to Capacity	0.05	0.05	0.09
Queue Length 95th (ft)	4	0	8
Control Delay (s)	11.2	0.0	6.3
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	6.3
Approach LOS	B		

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A	
Analysis Period (min)	15			

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	20	70	80	55	24	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	76	87	60	26	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	147				236	117
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147				236	117
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				96	99
cM capacity (veh/h)	1435				740	935

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	98	147	32
Volume Left	22	0	26
Volume Right	0	60	5
cSH	1435	1700	768
Volume to Capacity	0.02	0.09	0.04
Queue Length 95th (ft)	1	0	3
Control Delay (s)	1.8	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	1.8	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix I

Mitigation Monitoring and Reporting Program

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Air Resources				
Air-1	The Applicant shall develop a Fugitive Dust Control Plan in compliance with Imperial County Air Pollution Control Regulation VIII to reduce Particulate Matter 10 and Fine Particulate Matter 2.5 emissions during construction. The Fugitive Dust Control Plan shall include: • Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan; • Description and location of operation(s); and • Listing of all fugitive dust emissions sources included in the operation. • The following dust control measures shall be implemented: 1. The road leading to the operations and maintenance facility shall be paved as early as practical during construction. 2. All other onsite unpaved roads shall be effectively stabilized using soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation. 3. All material excavated or graded will be sufficiently watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings. 4. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and when those activities cause visible dust plumes. All grading activities shall be suspended when wind speeds are greater than 30 miles per hour. 5. Track-out shall not extend 25 feet or more from an active operation and track-out shall be removed at the conclusion of each workday. 6. A wheel-washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed project property. 7. All hauling materials should be moist while being loaded into dump trucks. All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). 8. Soil loads should be kept below 18 inches or the freeboard of the truck. 9. Drop heights should be minimized when loaders dump soil into trucks. 10. Gate seals should be tight on dump trucks. 11. Traffic speeds on unpaved roads shall be limited to 15 miles per hour. 12. Other fugitive dust control measures as necessary to comply with Imperial County Air Pollution Control District Rules and Regulations. 13. Disturbed areas should be minimized. 14. Disturbed areas should be revegetated as soon as possible after disturbance.	Imperial County Air Pollution Control District	Prior to construction (plan) and during construction	Submit Fugitive Dust Control Plan to Imperial county Air Pollution Control District for review and approval. Monitor in field during construction.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Air-2	The Applicant shall control emissions from the on-site off-road construction equipment by implementing the following: • All off-road construction diesel engines not registered under California Air Resources Board's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower to 750 horsepower, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 3 engine is not available for any off-road engine larger than 100 horsepower and smaller than 750 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxides and particulate matter emissions that are equivalent to Tier 3 engine. Off-road equipment with diesel engines larger than 750 horsepower shall meet Tier 2 California Emission Standards. • All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized. • All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification.	Bureau of Land Management (BLM) and County of Imperial	Prior to construction (documentation) and during construction	Documentation for all off-road construction diesel engines shall be submitted to the BLM and Imperial County for review to ensure equipment meets specified standards. Monitor in field during construction.
Air-3	The Applicant shall control fugitive dust from the unpaved roads on the site during operation using the following methods: • The main access road for employees and deliveries to the maintenance complex shall be paved as early during construction as practical. • The other unpaved roads at the site shall be stabilized using water or soil stabilizers so that vehicle travel on these roads does not cause visible dust plumes. • Traffic speeds on unpaved roads shall be limited to no more than 15 miles per hour. Traffic speed signs shall be displayed prominently at all site entrances and at egress point(s) from the central maintenance complex.	BLM and County of Imperial	During construction	Monitor in field during construction.
Air-4	The Applicant shall control emissions from the on-site dedicated equipment (i.e. equipment that would remain on site each day) by implementing the following: • All on-site off-road equipment and on-road vehicles for operation/maintenance shall be new equipment that meets the recent California Air Resources Board engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate. • All equipment shall be turned off when not in use. Engine idling of all equipment shall be minimized. • All equipment engines shall be maintained in good operating condition and in proposed tune per manufacturers' specification.	BLM and County of Imperial	Prior to operations (documentation) and during operations	Documentation for all on-site off-road equipment and on-road vehicles shall be submitted to the BLM and Imperial County for review to ensure equipment meet specified standards. Submit maintenance records upon request of the BLM and/or Imperial County to ensure equipment engines are maintained.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Cultural Resources				
CUL-1	**Identify and evaluate cultural resources in final Area of Potential Effects (APE).** The Applicant shall provide sufficient technical data to enable the BLM to properly evaluate the significance of all potentially affected cultural resources. Cultural resources data collection shall be conducted by professionals meeting the Secretary's Standards and in accordance with those Standards, to provide recommendations with regard to their eligibility for the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), or local registers. Preliminary determinations of National Register eligibility will be made by the BLM, in consultation with Imperial County and other appropriate consulting parties, Native American tribes, and the State Historic Preservation Officer (SHPO).	BLM and County of Imperial	Prior to construction.	Technical data shall be submitted to the BLM and Imperial County for review.
CUL-2	**Avoid and protect potentially significant resources.** Where feasible, potentially National Register-eligible resources and California Register-eligible resources shall be protected from direct project impacts by project redesign. Complete avoidance of impacts to such resources shall be the preferred protection strategy. Avoidance of direct physical effects is the preferred treatment measure for historic properties to which Native American tribes attach sacred or religious significance, or for properties that have cultural significance as a traditional cultural property. The BLM would achieve this preferred treatment by conditioning the right-of-way (ROW) grant to exclude those historic properties, or lands from the project. On the basis of preliminary National Register eligibility assessments or previous determinations of resource eligibility, the BLM and Imperial County, in consultation with the SHPO, may request the relocation of the project area where relocation would avoid or reduce damage to cultural resource values. Where the BLM and Imperial County, in consultation with the Applicant, decide that potentially National Register-eligible and/or California Register-eligible cultural resources cannot be protected from direct impacts by project redesign, or that avoidance is not feasible, the Applicant shall undertake additional studies needed by the BLM to evaluate the resources' National Register and/or California Register eligibility and to recommend further mitigating treatment. The nature and extent of this evaluation shall be determined by the BLM in consultation with the consulting parties and shall be based upon final project engineering specifications. Evaluations will be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area. Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan (HPTP). All potentially National Register-eligible and/or California Register-eligible resources or resources that are treated as eligible for project management purposes that will not be affected by direct impacts, but are within 100 feet of direct impact areas, will be designated	BLM and County of Imperial	Prior to and during construction.	Additional studies, if warranted shall be submitted to the BLM and Imperial County for review. A CRMP with a monitoring program shall be developed and submitted to the BLM and Imperial County.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	as Environmentally Sensitive Areas (ESAs) to ensure that construction activities do not encroach onsite peripheries. Protective fencing, or other markers (after approval by Imperial County/BLM), shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of a Cultural Resources Management Plan (CRMP) and implemented by the Applicant to ensure the effectiveness of ESA protection.			
CUL-3	**Develop and implement a CRMP.** Upon approval of the inventory report and the National Register and California Register eligibility evaluations, the Applicant shall prepare and submit for approval a CRMP. The CRMP shall define and map all known cultural resources within 100 feet of all project APEs. The CRMP shall also detail how resources will be marked and protected as ESAs during construction. The CRMP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried significant cultural resources, including burials, cremations, or sacred features. This sensitivity evaluation shall be conducted by an archaeologist who meets the Secretary of the Interior's Standards and who takes into account geomorphic setting and surrounding distributions of archaeological deposits. The CRMP shall detail provisions for monitoring construction in these high-sensitivity areas. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing register-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the CRMP shall detail the methods, consultation procedures, and timelines for assessing register-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be approved by the BLM, Imperial County, and the SHPO prior to implementation.	BLM and County of Imperial	Prior to construction.	A CRMP shall be developed and submitted to the BLM and Imperial County for review.
CUL-4	**Develop an HPTP and conduct data recovery or other actions to resolve adverse effects.** If National Register-eligible and/or California Register-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the proposed project, data-recovery investigations or other mitigation shall be conducted by the Applicant to resolve adverse effects to the characteristics of each property that contribute to its National Register and/or California Register eligibility. As part of the HPTP, the Applicant shall prepare a research design and a scope of work for data recovery or additional treatment of National Register-eligible and/or California Register-eligible sites that cannot be avoided and to resolve effects. Treatment of significant cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and other appropriate State and local regulations. The HPTP shall be submitted to the BLM for review and approval. For sites eligible under Criterion (d), significant data could be recovered through excavation and analysis. For properties eligible under Criteria (a), (b), or (c), mitigation may include but is	BLM and County of Imperial	Prior to and during construction.	Documentation of data-recovery investigations or other mitigation shall be developed and submitted to the BLM and Imperial County for review.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	not limited to historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of the HPTP shall guide plans and data thresholds for data recovery; treatment will be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations will follow standard statistical sampling methods, but sampling will be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP and implemented by the Applicant only after approval by the BLM. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM to ensure that impacts to known significant archaeological deposits are adequately resolved. The HPTP shall include provisions for reporting of results, curation of artifacts and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports. The BLM will retain ownership of artifacts collected from BLM managed lands. The Applicant shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The HPTP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary of the Interior's Standards (per 36 Code of Federal Regulations [CFR] 61). A description of alternative treatments to resolve adverse effects that are not data recovery may include (but are not limited to): • Historical documentation for built-environment resources such as that completed for the Historic American Building Survey/Historic American Engineering Record program; • Placement of construction in parts of historic properties that do not contribute to the qualities that make the resource eligible for the National Register; • Deeding cemetery areas into open space in perpetuity and providing the necessary long-term protection measures; • Public interpretation including the preparation of a public version of the cultural resources studies and/or education materials for local schools; • Access by Native American tribes to traditional areas on the project site after the project has been constructed; • Support by Applicant to cultural centers in the preparation of interpretive displays; and • Consideration of other off-site mitigation.			
CUL-5	**Monitor construction at known ESAs.** The Applicant shall implement full-time archaeological monitoring by a professional archaeologist during ground-disturbing activities at all cultural resource ESAs. These locations and their protection boundaries shall be defined and mapped in the CRMP. Archaeological monitoring shall be conducted by a qualified archaeo-	BLM and County of Imperial	During construction.	Monitor in field during construction. Compliance with and effectiveness of any cultural resources monitoring required by a CRMP shall be

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	logist familiar with the types of historical and prehistoric resources that could be encountered within the project, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the BLM. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. The monitoring plan in the CRMP shall indicate the locations where Native American monitors will be required. The Applicant shall retain and schedule any required Native American monitors. Compliance with and effectiveness of any cultural resources monitoring required by the CRMP shall be documented by the Applicant in a monthly report to be submitted to the BLM for the duration of project construction. In the event that cultural resources are not properly protected by ESAs, all project work in the immediate vicinity shall be diverted to a buffer distance determined by the archaeological monitor until authorization to resume work has been granted by the BLM and Imperial County. The Applicant shall notify the BLM of any damage to cultural resource ESAs. If such damage occurs, the Applicant shall consult with the BLM to mitigate damages and to increase effectiveness of ESAs. At the discretion of the BLM and Imperial County, such mitigation may include, but not be limited to, modification of protective measures, refinement of monitoring protocols, data-recovery investigations or payment of compensatory damages in the form of non-destructive cultural resources studies or protection within or outside the license area, at the discretion of the BLM.			documented in a monthly report to be submitted to the BLM for the duration of project construction. The Applicant shall notify the BLM of any damage to cultural resource ESAs.
CUL-6	**Train construction personnel.** All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. The Applicant shall complete training for all construction personnel and retain documentation showing when training of personnel was completed. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that ESAs must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the ROW by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction: • All construction contracts shall require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection,	BLM and County of Imperial	Prior to construction.	Documentation showing when training of personnel was completed shall be submitted to the BLM and Imperial County for review.

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	vandalism, or inadvertent destruction of cultural resources. • The Applicant shall provide training for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.			
CUL-7	**Properly treat human remains.** All locations of known Native American human remains shall be avoided through project design and shall be protected by designation as ESAs. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall assist and support the BLM in all required Section 106, government to-government and Native American Graves Protection and Repatriation Act (NAGPRA) consultations with Native Americans, agencies and commissions, and consulting parties as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations. If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately. Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct project impacts by project redesign. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.	BLM	During construction.	If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately.
CUL-8	**Monitor construction in areas of high sensitivity for buried resources.** The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the HPTP as highly sensitive for buried prehistoric or historical archaeological sites or Native American human remains. These locations and their protection boundaries shall be defined and mapped in the HPTP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and Imperial County. Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the BLM Authorized Officer or his/her designee shall be notified immediately. Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist will consult with the BLM, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs, in accordance with the Secretary's Standards, and as specified in the HPTP.	BLM	During construction.	Monitor in field during construction. Upon discovery of potential buried cultural materials or damage to an ESA, work in the immediate area of the find shall be diverted and the BLM Authorized Officer or his/her designee shall be notified immediately.

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CUL-9	**Continue consultation with Native American and other traditional groups.** The Applicant shall provide assistance to the BLM, as requested by the BLM, to continue required government to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994, and Section 106 of the National Historic Preservation Act) and other traditional groups to assess or mitigate the impact of the approved project on traditional cultural properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Actions that are required during or after construction shall be defined, detailed, and scheduled in the CRMP and implemented by the Applicant.	BLM	Prior to and during construction.	Applicant shall provide assistance to the BLM, as requested.
CUL-10	**Protect and monitor National Register-eligible and/or California Register-eligible properties.** The Applicant shall design and implement a long-term management plan to protect National Register-eligible, California Register-eligible sites or sites treated as eligible for project management purposes from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project. The plan shall be developed in consultation with the BLM and other consulting parties to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts. The plan shall also include protective measures for the cultural resources within the transmission line corridor or main project area that may experience operational and access impacts as a result of the project. Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting the resources. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to resources. Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a minimum period of 5 years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations. A monitoring report shall be submitted to the BLM within 1 month following the annual resource monitoring. The report shall indicate any properties that have been affected by erosion, unauthorized excavation or collecting or vehicle or maintenance impacts. For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After 5 years of resource monitoring, the BLM will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or Imperial County may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or	BLM and Imperial County	During operation.	A long-term management plan to protect National Register-eligible, California Register-eligible sites or sites treated as eligible for project management purposes from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project, shall be developed in consultation with the BLM

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	schedule, those shall remain in effect for the duration of project operation. If the annual monitoring program identifies adverse effects to National Register-eligible and/or California Register-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM or Imperial County become aware of such adverse effects, the Applicant shall notify the BLM immediately and implement additional protective measures, as directed by the BLM. At the discretion of the BLM such measures may include, but not be limited to, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of nondestructive cultural resources studies or protection.			
CUL-11	**Control unauthorized access.** The Applicant shall coordinate with the authorized officer of the BLM or local landowner/administrator at least 60 days before construction in order to determine if gates shall be installed on access roads, especially trails that would be dually used as access roads, to prevent unauthorized vehicular access to the ROW. Gate installation shall be required at the discretion of the land management agency. On trails proposed for dual use as access roads, gates shall be wide enough to allow horses, bicycles, and pedestrians to pass through. The Applicant shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the administering agency and all affected jurisdictions 30 days prior to construction. Signs prohibiting unauthorized use of the access roads shall be posted on the installed gates.	BLM and Imperial County	Prior to construction.	The Applicant shall document its coordination efforts with the administering agency of the road/trail and provide this documentation to the administering agency and all affected jurisdictions 30 days prior to construction.
CUL-12	**Funding of law enforcement patrols.** To control unauthorized use of project access roads and to provide for the general protection of cultural and natural resources made more accessible as a result of the project facilities, the Applicant shall provide funding to land management entities for law enforcement patrols for the term of the ROW. The responsible land management entities will formulate what funding is reasonable to implement the above.	BLM and Imperial County	During operation.	The Applicant shall provide funding to land management entities for law enforcement patrols for the term of the ROW.
Lands and Realty				
Lands-1	Notify the communities of Ocotillo and Nomirage of all major project construction milestones, such as the start of project construction. Property owners within 1,000 feet of the project shall be provided with a detailed construction schedule at least 30 days before construction so that they are informed as to the time and location of disturbance. Updates shall be provided as necessary.	County of Imperial	Prior to and during construction	Documentation of all notifications and mailing lists shall be provided to BLM and the County of Imperial upon request.
Lands-2	The project shall be designed to minimize disturbance or modification of existing uses. If disturbance or modification of existing uses were necessary, the Applicant shall coordinate with the owners to determine an acceptable solution. Any such solutions/agreements shall be prepared in writing and submitted to the BLM and County.	BLM and/or County of Imperial	Prior to construction	Project design documents shall be submitted to the BLM and County of Imperial for review and approval. If disturbance or modification of existing uses is necessary, documentation of all coordination efforts with owners and resolutions shall be provided to BLM and/or the County, as appropriate.

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Lands-3	The decommissioning plan shall include notification of property owners of all major decommissioning milestones, such as the start of decommissioning activities. Said property owners shall be provided with a detailed decommissioning schedule at least 30 days prior to decommissioning so that they are informed as to the time and location of disturbance. Updates shall be provided as necessary. In addition, the decommissioning plan shall ensure compliance with all applicable federal, State, and local plans, policies, and regulations at the time of decommissioning.	BLM and County of Imperial	Prior to decommissioning	Submit decommissioning plan, including detailed decommissioning schedule to BLM and the County of Imperial. Submit documentation of notification to property owners 30 days prior to decommissioning to BLM and the County of Imperial.
Noise				
Noise-1	**Limit Hours of Construction/Decommissioning.** Construction/decommissioning activities (including truck deliveries) shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturday and not permitted on Sunday or holidays when construction is occurring within 3,000 feet of residential or recreational areas.	BLM and County of Imperial	During construction & decommissioning	Monitor in field during construction and decommissioning.
Noise-2	**Ensure Equipment Performance.** During construction/decommissioning and prior to commencement of daily construction/decommissioning activities, the Applicant or project contractor shall inspect and verify that each piece of equipment, as appropriate, is fitted with efficient, well-maintained mufflers no less effective than those provided on the original equipment to reduce equipment noise emissions.	BLM and County of Imperial	During construction & decommissioning	Monitor in field during construction and decommissioning.
Noise-3	**Limit Use of Noise-Producing Signals.** The use of noise-producing signals, including horns, whistles, electronic alarms, sirens, and bells will be for safety purposes only. Sound-control devices shall be installed on all construction equipment, no less effective than those provided on the original equipment. Broadband noise backup alarms shall be used on mobile equipment.	BLM and County of Imperial	During construction & decommissioning	Monitor in field during construction and decommissioning.
Noise-4	**Notify Residences of Construction/Decommissioning.** The Applicant or project contractor shall provide advanced notification through public mailings and signs directed towards residents, landowners, and recreational users within one mile of the site at least one week prior to construction/ decommissioning. The notice shall state specifically when and where construction/ decommissioning activities would occur in the area. A phone number shall be provided as part of all public notifications to enable individuals to contact the Applicant and/or project contractor to report any significant undesirable noise conditions associated with construction or decommissioning activities. If the telephone is not staffed 24 hours per day, the Applicant and/or project contractor shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This number shall be maintained until the project has been operational for at least one year. The Applicant shall document, investigate, and evaluate all complaints and attempt to resolve all legitimate project-related noise complaints and provide the BLM with the results of said investigation no later than 15 days after the complaint.	County of Imperial	Prior to construction & decommissioning (notifications) and during construction & decommissioning (documentation of noise complaints)	Documentation of all notifications and mailing lists shall be provided BLM and the County of Imperial upon request. Documentation of all project-related noise complaints, investigations, evaluations, and resolutions shall be submitted to BLM and the County of Imperial upon request.

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MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Noise-5	**Limit Hours of Road and Turbine Maintenance Activities.** Road and turbine maintenance activities involving the use of large construction equipment, such as graders, cranes, and/or man lifts shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. on Saturday and not permitted on Sunday or holidays when occurring within 3,000 feet of an occupied residence to avoid exceeding the Imperial County Noise Element limits and meet Imperial County construction equipment operations limitations.	BLM and County of Imperial	Prior to operations (documentation) and during operations	Operations manuals or other operational guidance shall specify limits for road and turbine maintenance activities. Submit to BLM and County of Imperial for review prior to start of operations. Monitor in field during operations.
Paleontological Resources				
Paleo-1	The two areas of Palm Spring Formation (Potential Fossil Yield Classification [PFYC] Class 4) exposures identified within the Ocotillo Wind Energy Facility (OWEF) boundary, where a high density of vertebrate fossils were found, shall be avoided to preserve subsurface fossils in their native stratigraphic context. Avoidance areas shall be marked prior to construction.	BLM	During construction	Monitor in field during construction.
Paleo-2	Prior to construction, a training session on the recognition of the types of paleontological resources that could be encountered within the project area and the procedures to be followed if they are found shall be presented to project construction personnel by a qualified and BLM-permitted professional paleontologist.	BLM	Prior to construction	Submit resume(s) of paleontologist who will conduct training to BLM for review and approval.
Paleo-3	If construction or other project personnel discover any potential fossils during construction, project operation and maintenance, or decommissioning, the fossils shall be left undisturbed and the BLM Authorized Officer shall be notified immediately.	BLM	During construction, operations, and decommissioning	Report all discoveries of potential fossils to BLM within 24 hours of identification. Stop all work in that area until BLM has determined fossil legitimacy and cleared the area or otherwise indicates work may proceed.
Public Health and Safety				
PHS-1	Prior to issuance of building permits, the Applicant shall submit documentation to the Bureau of Land Management and Imperial County Planning & Development Services demonstrating a Determination of No Hazard to Air Navigation from the Federal Aviation Administration (FAA) of Form 7460-1 (Notice of Proposed Construction or Alteration). Documentation shall also be furnished to the Bureau of Land Management and Imperial County Planning & Development Services demonstrating that a copy of the approved form(s) has been provided to the operator of the Emory Ranch private airport. All project components shall have lighting and marking required by the Federal Aviation Administration so not to create a hazard to air navigation. Lighting placed on wind turbines must be compatible with military night-vision goggles utilized by the Department of the Navy.	BLM and County of Imperial	Prior to construction	Submit FAA's Determination of No Hazard to Air Navigation to the BLM and County of Imperial Planning & Development Services. Additional documentation shall demonstrate that the approved FAA form(s) have been provided to the Emory Ranch private airport. Project components shall be field inspected following construction to ensure required lighting and markings are properly installed.
PHS-2	All wind turbines constructed within the area 1.5 nautical miles south of the centerline of the U.S. Navy, Department of Defense Airspace Consultation Area shall be less than 400 feet tall at the maximum blade tip height.	BLM	Prior to construction	Submit design plans for the wind turbines, including heights to the BLM for review and approval.

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MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
PHS-3	Prior to the issuance of building or grading permits, the Applicant shall conduct a full geotechnical study to evaluate soil conditions and geologic hazards on the project site and submit it for approval to the Bureau of Land Management for federal lands and the Imperial County Planning & Development Services for County lands. The geotechnical study must be signed by a California-registered professional engineer and must identify the following: • Location of fault traces and potential for surface rupture; • Potential for seismically induced ground shaking, liquefaction, landslides, differential settlement, and mudflows; • Stability of existing cut-and-fill slopes; • Collapsible or expansive soils; • Foundation material type; • Potential for wind erosion, water erosion, sedimentation, and flooding; • Location and description of unprotected drainage that could be impacted by the proposed development; and • Recommendations for placement and design of facilities, foundations, and remediation of unstable ground. The Applicant shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The Applicant shall not locate project facilities on or immediately adjacent to a fault trace. The BLM and Imperial County Planning & Development Services will evaluate any final facility siting design developed prior to the issuance of any building or grading permits to verify that geological constraints have been avoided.	BLM and County of Imperial	Prior to construction and issuance of building or grading permits	Submit geotechnical study, signed by a California-registered professional engineer, to BLM (for federal lands) and County of Imperial (for County lands) for review and approval at least 60 days before final project design. To verify that geological constraints detailed in the geotechnical study have been avoided, submit final facility siting design plans to BLM and the County of Imperial for review and approval.
PHS-4	If, during grading or excavation work, the contractor observes visual or olfactory evidence of contamination or if soil contamination is otherwise suspected, work near the excavation site shall be terminated, the work area cordoned off, and appropriate health and safety procedures implemented for the location by the contractor's Health & Safety Officer. Samples shall be collected by an Occupational Safety and Health Administration-trained individual with a minimum of 40-hours hazardous material site worker training. Laboratory data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer. If the sample testing determines that contamination is not present, work may proceed at the site. However, if contamination is detected above regulatory limits, the BLM and the Imperial County Public Health Department shall be notified. All actions related to encountering unanticipated hazardous materials at the site shall be documented and submitted to the BLM for federal lands and the Imperial County Public Health Department for County lands.	BLM and Imperial County Public Health Department	During construction	Monitor in field during construction to ensure procedures are followed as specified in measure. Notify BLM and Imperial County Public Health Department if contamination is detected above regulatory limits. Document all actions related to encountering unanticipated hazardous materials at the site and submit to BLM (for federal lands) and Imperial County (for County lands).

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MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
PHS-5	If blasting is required, the Applicant shall contract with a blasting contractor with experience conducting blasting activities, licensed to use Class A explosives, and licensed as a contractor in the State of California. The blasting contractor shall prepare a blasting plan for the proposed blasting activities to prevent endangering worker safety. The blasting plan shall be submitted to the Bureau of Land Management for approval on federal lands and to the Imperial County Planning & Development Services for approval on County lands, in consultation with the Imperial County Public Health Department, the Imperial County Fire Department, and the Imperial County Air Pollution Control District. The blasting plan shall: • Describe procedures to be implemented to protect workers during blasting, such as using a signaling system to alert workers of an impending blast and using blasting mats to prevent or reduce the number of rock particles thrown into the air; • Describe procedures for proper storage and transportation of explosive materials, including protecting explosives from wildfires; • Prohibit blasting during extreme fire danger periods; and • Comply with the U.S. Bureau of Mines and the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement guidelines for minimizing damage to structures from blasting.	BLM and County of Imperial	Prior to construction (plan) and during construction	If blasting is required, submit blasting plan to BLM (for federal lands) and Imperial County Planning & Development (for County lands) for review and approval. Copies of the blasting plan shall also be submitted to Imperial County Public Health Department, Imperial County Fire Department, and Imperial County Air Pollution Control District for review. Monitor in field during construction to ensure plan implementation.
PHS-6	If herbicides are utilized, the contractor or personnel applying herbicides must have all the appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. Herbicides shall be mixed and applied in conformance with the product manufacturer's directions. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and waterbodies, herbicides shall not be applied directly to wildlife, products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed, and herbicides shall not be applied within 50 feet of any surface water-body when water is present. Herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.	BLM and County of Imperial	During construction	Monitor in field during construction.
PHS-7	The Applicant shall site all fueling, hazardous materials storage areas, and operation and maintenance activities involving hazardous materials at least 100 feet away from blue-line drainages as identified on U.S. Geological Survey topography maps and wetlands.	BLM and County of Imperial	During construction	Monitor in field during construction.
PHS-8	The Applicant shall appoint an Emergency Response Liaison to coordinate the reduction of construction-related traffic for the duration of any emergency at or nearby the project site. The BLM, Imperial County Fire Department, Imperial County Sherriff's Office, and the California Highway Patrol shall be provided with the construction schedule and the on-site contact information for the Liaison prior to construction. The Liaison shall be immediately	BLM and County of Imperial	Prior to construction (procedures) and during construction	Submit emergency procedures for access to the project site to BLM, Imperial County Fire Department, Imperial County Sherriff's Office, and California Highway Patrol for review.

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	reachable at all times during project construction. The Liaison shall have radio contact with project construction vehicles at all times to coordinate traffic reduction measures. In addition, the Liaison shall coordinate with the BLM, Imperial County Fire Department, the Imperial County Sherriff's Office and the California Highway Patrol to establish emergency procedures for access to the project site in the event of an emergency.			Submit documentation to BLM and the County of Imperial showing receipt of construction schedule and on-site contact information for the Emergency Response Liaison to the above-mentioned parties. Monitor in field during construction.
PHS-9	In order to eliminate the risk of generating disease vectors at the site, during project construction and operations, the Applicant shall ensure that trash is stored in closed containers and removed from the site at regular intervals. Open containers shall be inverted and construction ditches shall not be allowed to accumulate water. Construction and maintenance operations shall not generate standing water. Naturally occurring depressions, drainages, and pools at the site shall not be drained or filled without consulting with the appropriate resource agency (BLM, Imperial County, U.S. Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG)) and obtaining the appropriate permits. The environmental monitor will ensure that standing water and large quantities of trash do not accumulate on site.	BLM and County of Imperial	During construction and operations	Monitor in field during construction. Submit documentation to BLM and County of Imperial of all consultation with resource agencies, permit applications, and final permits obtained. Monitor in field during construction to ensure standing water and large quantities of trash do not accumulate on site.
Soil Resources				
Soil-1	**Conduct geotechnical studies to assess soil characteristics and aid in appropriate foundation design.** The design-level geotechnical studies to be performed by the Applicant shall identify the presence, if any, of potentially detrimental soil chemicals, such as chlorides and sulfates. Appropriate design measures for protection of reinforcement, concrete, and metal-structural components against corrosion shall be utilized, such as use of corrosion-resistant materials and coatings, increased thickness of project components exposed to potentially corrosive conditions, and use of passive and/or active cathodic protection systems. The geotechnical studies shall also identify areas with potentially expansive or collapsible soils and include appropriate design features, including excavation of potentially expansive or collapsible soils during construction and replacement with engineered backfill, ground-treatment processes, and redirection of surface water and drainage away from expansive foundation soils. Studies shall conform to industry standards of care and American Society for Testing and Materials (ASTM) standards for field and laboratory testing. Study results and proposed solutions shall be provided for review and approval to the BLM, for actions on BLM lands, and to Imperial County, for actions on County lands, at least 60 days before final project design.	BLM and County of Imperial	Prior to construction and issuance of building or grading permits	Submit geotechnical study, signed by a California-registered professional engineer, to BLM (for federal lands) and County of Imperial (for County lands) for review and approval at least 60 days before final project design. To verify that geological constraints detailed in the geotechnical study have been avoided, submit final facility siting design plans to BLM and the County of Imperial for review and approval.

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Vegetation Resources				
Veg-1a	Final engineering of the project shall reduce the size of the temporary construction work areas where possible and minimize the impacts to sensitive vegetation communities. Prior to the start of construction, work areas (including, but not limited to, staging areas, access roads, and sites for temporary placement of construction materials and spoils) shall be delineated with orange construction fencing or staking to clearly identify the limits of work and shall be verified by the biological monitor (Mitigation Measure Veg-1b) prior to ground disturbing activities. Fencing/staking shall remain in place for the duration of construction. Spoils shall be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. To the extent possible, disturbance of shrubs and surface soils due to stockpiling shall be minimized. All disturbances, vehicles, and equipment shall be confined to the flagged areas. When feasible, construction activities shall implement drive and crush rather than grading. Construction equipment would drive over and crush native plants to minimize impacts to the roots of desert shrubs. Drive and crush is expected to reduce the recovery time of desert scrubs within the temporary construction areas.	BLM and County of Imperial	Prior to and during construction	Submit final facility siting design plans to BLM and the County of Imperial for review and approval. Biological Monitor to monitor in field during construction.
Veg-1b	Prior to ground disturbing activities, an individual shall be designated and approved by the BLM and Wildlife Agencies (USFWS and CDFG) as a Designated Biologist (i.e., field contact representative). A Designated Biologist will be designated for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on vegetation restoration. The Designated Biologist shall have the authority and responsibility to halt activities that are in violation of the Mitigation Measures. To avoid and minimize effects to biological resources, the Designated Biologist shall: • Notify BLM's Authorized Officer and the wildlife agencies at least 14 calendar days before initiating ground disturbing activities. • Immediately notify BLM's Authorized Officer and the wildlife agencies in writing if the project Applicant does not comply with any of the mitigation measures. • Conduct compliance inspections at a minimum of once per month during on-going construction after clearing, grubbing, and grading are completed, and submit a monthly compliance report to BLM's Authorized Officer until construction is complete. Prior to project initiation, the Designated Biologist shall develop and implement a Worker Education Awareness Program (WEAP) and shall be available in English and Spanish. Wallet-sized cards summarizing the information will be provided to all construction and operation and maintenance (O&M) personnel. The WEAP shall include the following: • An explanation of the function of flagging that designates authorized work areas. • An explanation of the sensitivity of the vegetation communities and special status plant	BLM , USFWS, CDFG	Prior to construction (resumes) and during construction	Prior to construction, submit resumes of recommended individual for Designated Biologist position to the BLM, USFWS, and CDFG for review and approval. Prior to project initiation, submit WEAP to BLM for review and approval and to USFWS and CDFG for review. Designated Biologist to monitor in field during construction.

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	species within and adjacent to work areas. • The importance of avoiding the introduction of invasive weeds onto the proposed OWEF site and surrounding areas.			
Veg-1c	Implement special status plant species avoidance/restoration/compensation. Prior to the start of construction, a qualified biologist shall conduct focused surveys during the appropriate blooming period for special status plant species for all portions of the proposed project that have not been previously surveyed. When feasible, construction activities should avoid special status plant species. The Habitat Restoration/ Revegetation Plan (HRRP) (Mitigation Measure Veg-2b) shall include methods to salvage soil and seed in areas containing special status plant species for use in the revegetation of temporary impact areas, and shall include container stock and seed of the affected special status plant species for use in restoration/revegetation areas.	BLM, USFWS, CDFG	Prior to construction	Submit reports of focused surveys to the BLM, USFWS, and CDFG for review prior to issuance of the HRRP (see MM Veg-2b).
Veg-1d	Prepare and implement an Integrated Weed Management Plan to control non-native invasive weeds as developed in cooperation with the BLM and County of Imperial. The Integrated Weed Management Plan for the project shall include a risk assessment of the invasive weed species currently known within the proposed OWEF site, procedures to control their spread on site and to adjacent off-site areas, and procedures to help minimize the introduction of new weed species. The Integrated Weed Management Plan shall be submitted to the BLM and County for review and approval prior to the start of construction and shall be implemented prior to, during, and following the completion of construction for the life of the project.	BLM and County of Imperial	Prior to construction (plan), during and post-construction	Submit Weed Management Plan to BLM and the County of Imperial for review and approval prior to construction. Monitor in field during and after construction to ensure compliance with the plan.
Veg-2a	Permanent impacts to sensitive vegetation communities shall be compensated through a combination of compensation and restoration at a minimum 1:1 ratio or as required by the permitting agencies. Habitat compensation shall be accomplished through agency-approved land preservation or mitigation fee payment for the purpose of habitat compensation of lands supporting comparable habitats to those lands impacted by the proposed project. Restoration may be appropriate as mitigation for permanent impacts provided that restoration is demonstrated to be feasible and the restoration effort is implemented pursuant to a Habitat Restoration/Revegetation Plan (Mitigation Measure Veg-2b).	BLM, USFWS, CDFG	Prior to construction (plan) and post-construction	Submit HRRP to BLM, USFWS, and CDFG for review and approval prior to construction. Monitor in field following construction for a period of 5 years to ensure restoration / revegetation meets all success criteria.
Veg-2b	Temporarily disturbed areas shall be revegetated according to a (HRRP) approved by the BLM and Wildlife Agencies. The HRRP must be approved in writing prior to the initiation of any vegetation disturbing activities. Restoration involves recontouring the land and replacing topsoil (if it was collected). Revegetation also involves planting seed and/or container stock, maintaining the plantings (e.g., weeding, replacement planting, supplemental watering), and monitoring the restored/revegetated areas for a period of at least five years (or until the restoration/ revegetation meets all success criteria). The HRRP shall include methods to salvage soil and seed in areas containing special status plant species for use in the revegetation of temporary impact areas, and shall include container stock and seed of the affected special status plant species for use in restoration/revegetation areas. Restoration measures in desert environments generally includes alleviating soil compaction, returning the	BLM, USFWS, CDFG	Prior to construction (plan) and post-construction	Submit HRRP to BLM, USFWS, and CDFG for review and approval prior to construction. Monitor in field following construction for a period of 5 years to ensure restoration / revegetation meets all success criteria.

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	surface to its original contours, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings with root mass necessary to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting locally collected seed immediately prior to the rainy season, and covering seeds with mulch. If after five years of monitoring there are areas that do not meet the success criteria outlined in the HRRP, these areas shall be compensated off site at a 1:1 ratio of equal or better quality habitat compared to what was impacted, in accordance with Mitigation Measure Veg-2a.			
Veg-3	The Applicant shall prepare and implement a Jurisdictional Mitigation Plan to describe the mitigation for impacts to jurisdictional areas within the proposed OWEF site. The Jurisdictional Mitigation Plan shall be submitted to the ACOE, Regional Water Quality Control Board (RWQCB), and CDFG for review and approval and shall describe the location and size of the mitigation proposed, description of the habitat creation/restoration effort, success criteria, and maintenance and monitoring specifications.	BLM, County of Imperial, ACOE, RWQCB, CDFG	Prior to construction (permits) and during construction	Submit copies of all permits from agencies to BLM and the County of Imperial for review. Monitor in field during construction to ensure compliance with permit conditions.
Visual Resources				
VR-1	The Applicant shall revegetate disturbed soil. In order to specifically address visual concerns, the Decommissioning and Restoration plans shall include reclamation of the area of disturbed soils used for laydown, project construction, and siting of the other ancillary operation and support structures. Revegetation shall re-establish the pre-existing colors, textures and form to the landscape and visually integrate into the adjacent edges removing the lines of demarcation.	BLM and County of Imperial	After construction and after decommissioning	Submit HRRP to BLM, USFWS, and CDFG for review and approval prior to construction. Monitor in field following construction and decommissioning.
VR-2	The Applicant shall design and install all permanent exterior lighting and all temporary construction lighting such that: (a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; (b) lighting does not cause excessive reflected glare; (c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting (which should be an on-demand, audio-visual warning system that is triggered by radar technology); (d) illumination of the project and its immediate vicinity is minimized; and (e) the plan complies with local policies and ordinances. The Applicant shall submit to the BLM and Imperial County for review and approval a lighting mitigation plan that includes the following: • Location and direction of light fixtures that take the lighting mitigation requirements into account; • Lighting design that considers setbacks of project features from the site boundary to aid in satisfying the lighting mitigation requirements; • Lighting shall incorporate fixture hoods/shielding, with light directed downward or toward the area to be illuminated; • Light fixtures that are visible from beyond the project boundary shall have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the project boundary, except where necessary for security;	BLM and County of Imperial	During project design and construction	Submit copies of lighting plans to BLM and Imperial County for review and approval.

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	• All lighting shall be of minimum necessary brightness consistent with operational safety and security; and • Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied.			
Water Resources				
Water-1	**Demonstrate compliance with water quality permits.** Prior to construction, the Applicant shall submit satisfactory evidence to the BLM and the Imperial County Department of Planning and Building, as applicable, that all of the agencies listed below have been contacted and whether or not each agency requires a permit associated with the OWEF. Permits may include, but are not limited to, a Streambed Alteration Agreement from the CDFG, a Clean Water Act Section 404 permit from the ACOE, a Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) General Permit for storm-water discharges associated with construction activities, including a Stormwater Pollution Prevention Plan (SWPPP) with Best Management Practices (BMPs) for stormwater manage-ment, a Clean Water Act Section 401 certification from the applicable RWQCB (Colorado River Basin RWQCB for activities at the proposed OWEF site, and/or San Diego Basin RWQCB for activities at the proposed water source in Pine Valley). Where a permit is required, the Applicant shall provide a copy of all the conditions required by that agency to BLM, for actions on BLM lands, and to the Imperial County Department of Planning and Building, for actions on County lands. The BLM and the County, as applicable, shall review these conditions for consistency with proposed plans. During construction, the Environmental Monitor shall be aware of these other agency conditions and if non-compliance is observed, shall contact the affected agency. For post-construction measures the Environmental Monitor shall notify the affected agency should non-compliance be observed. The Applicant shall maintain and make available on site at all times an approved copy of all required permits.	BLM and County of Imperial	Prior to construction (evidence/permit conditions) and during construction, and operations	Submit evidence to BLM and Imperial County Department of Planning and Building, as applicable, that all agencies listed have been contacted and indentify required permits. Where a permit is required, submit a copy of all conditions required by that agency to BLM (for federal lands) and Imperial County Building and Planning (for County lands) for review. Monitor in field during construction to ensure compliance with specified permit conditions, which shall be provided to the environmental monitor.
Water-2	**Develop a Water Supply Contingency Plan for construction.** Prior to construction, Applicant shall conduct a groundwater investigation for any groundwater basin(s) potentially affected by construction, operation, and/or decommissioning of the project to determine whether the identified groundwater resource(s) is in overdraft conditions; such investigation may include review of historic groundwater well data, groundwater monitoring, hydrologic modeling, and/or interviews with private well owners. The Applicant shall coordinate groundwater investigation efforts with the applicable RWQCB. No groundwater resources from overdrafted basins shall be used to meet project needs. If groundwater is to be used during project construction, at least two supply wells shall be identified for project use, a primary supply well and a secondary supply well. The Water Supply Contingency Plan shall identify the well sites, proximity to other active wells,	BLM and County of Imperial	Prior to construction (plan) and during construction	Submit Water Supply Contingency Plan to BLM and County of Imperial for review and to the applicable Regional Water Quality Control Board for review and approval. If groundwater is identified as a water source, coordina-tion efforts with the applicable Regional Water Quality Control Board shall be documented and provided to BLM and County of Imperial. Monitor in field during construction.

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	estimated total depth, well screen depth, diameter, estimated yield and water quality, and time required to have the wells drilled, constructed, developed and fully operational (if the wells are to be drilled specifically for the project, as opposed to use of existing wells). If the daily yields of the primary supply well are inadequate or become inadequate to meet the project requirements, the secondary supply well shall be used in order to avoid potential drawdown impacts at wells near the primary. Use of a secondary supply well would not alter the quantity of groundwater pumped for project purposes; the purpose of the secondary supply well would be to avoid potential impacts associated with over-pumping the primary supply well. The Water Supply Contingency Plan shall specify when the second supply well shall be used, what conditions would trigger necessary use of the second supply well, the person responsible for determining when to utilize the second supply well, and how such use shall be reported. The Environmental Monitor shall verify that the secondary supply well is installed and is capable of producing daily yields sufficient to supplement or replace the primary supply well in meeting construction water demand, as needed.			
Water-3	**Prepare Groundwater Monitoring and Reporting Plan.** The Applicant shall develop and implement a Groundwater Monitoring and Reporting Plan prior to the onset of construction of the OWEF. In the preparation and implementation of this plan, the Applicant shall coordinate with the BLM for actions on BLM lands within the Ocotillo-Coyote Wells Sole Source Aquifer (SSA), and with Imperial County for actions on County lands within the Ocotillo-Coyote Wells SSA. In addition, the Applicant shall coordinate with San Diego County for activities within the Campo-Cottonwood SSA. The Groundwater Monitoring and Reporting Plan shall be prepared by a qualified hydrogeologist and submitted by the Applicant to the BLM for approval, and to the Counties of Imperial and San Diego for review and comment. The Groundwater Monitoring and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels, water quality, and flow. Monitoring shall be performed during pre-construction, construction, and project operation with the intent to establish pre-construction and project-related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the project pumping wells and near potentially impacted existing private wells. The monitoring wells shall include locations up-gradient, lateral, and down-gradient of all project supply wells and a minimum of three offsite down-gradient wells. Water quality monitoring shall include annual sampling and testing for Total Dissolved Solids (TDS), which include minerals, salts, and metals dissolved in water. Water quality samples shall be drawn from project supply wells, one up-gradient well, and a minimum of two down-gradient offsite wells. During construction, quarterly water level monitoring data reports shall be submitted to the BLM for review and approval. Based on the results of the quarterly trend analyses, the Applicant shall determine if the project pumping has resulted in water level decline of five feet	BLM and County of Imperial	Prior to construction (plan) and during construction, and operations	Submit Groundwater Monitoring and Reporting Plan, prepared by a qualified hydrogeologist, to BLM for approval and to the Counties of Imperial and San Diego for review and comment. Monitor in field during pre-construction, construction, and project operations to establish pre-construction and project-related groundwater level and water quality trends. During construction, submit quarterly water level monitoring data reports to BLM for review.

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	or more below the baseline trend at nearby private wells. If drawdown of five feet or more occurs at off-site wells, the Applicant shall immediately reduce groundwater pumping until water levels stabilize or recover, sustaining drawdown of less than five feet. Alternatively, the Applicant shall provide compensation to the well owner, including reimbursement of increased energy costs, or deepening the well or pump setting. The Plan shall include a schedule for submittal of quarterly monitoring data reports by the Applicant to the BLM. The BLM shall determine whether groundwater wells surrounding the project site and project supply well(s) are affected by project activities in a way that requires additional mitigation and, if so, shall determine what measures are needed.			
Water-4	**Install pervious and/or high-roughness groundcover where applicable.** Prior to the onset of construction of the OWEF, the Applicant shall submit a drainage design and hydrologic and hydraulic analysis to the BLM for review and approval, and to the Imperial County Department of Planning and Building for review and comment. In the design plans, groundcover for the new substation shall be comprised of a pervious and/or high-roughness material (for example, gravel) to the maximum extent feasible, in order to ensure maximum percolation of rainfall after construction. Detention/retention basins shall be installed to reduce local increases in runoff, particularly on frequent runoff events (up to 10-year frequency). Downstream drainage discharge points shall be provided with erosion protection and designed such that flow hydraulics exiting the site mimic the natural condition as much as possible.	BLM and County of Imperial	Prior to construction	Submit drainage design and hydrologic and hydraulic analysis to BLM for review and approval and to Imperial County Department of Planning and Building for review and comment.
Water-5	**Design onsite drainage improvements to maximize groundwater recharge.** Prior to onset of construction of the OWEF, the Applicant shall design on-site drainage improvements (and include on all applicable construction plans) to include the following components to maximize groundwater basin recharge: drainage from impervious surfaces (e.g., roads, driveways, buildings) shall be directed to a common drainage basin; the project shall design as few basins as possible for the entire development; and where feasible, mass grading and contouring shall be done in a way to direct surface runoff towards the above-referenced basins (and/or closed depressions).	BLM and County of Imperial	Prior to construction	Submit final facility siting design plans to BLM and the County of Imperial for review and approval indicating on-site drainage improvements.
Water-6	**Construction site dewatering management.** If groundwater is unexpectedly encountered during construction, operation, or decommissioning of the OWEF, dewatering activities shall be performed in compliance with the California Stormwater Quality Association (CASQA) Handbook for Construction or other similar guidelines, as approved by the BLM, for actions on BLM lands, and/or by Imperial County, for actions on County lands. The Applicant shall notify the BLM and applicable County (Imperial and/or Sand Diego) and RWQCB (Colorado River Basin RWQCB for activities at the proposed OWEF site, and/or San Diego Basin RWQCB for activities at the proposed water source in Pine Valley) at the onset of dewatering and submit written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface, upon the completion of dewatering activities at the affected site(s). The Environmental Monitor shall periodically check grading activities for groundwater exposure. Should groundwater be encountered, compliance with	BLM, County of Imperial and/or County of San Diego, Colorado River Basin RWQCB (at the OWEF site) and/or San Diego Basin RWQCB (at proposed water source in Pine Valley)	During construction, operations, and decommissioning	If groundwater is unexpectedly encountered, notify BLM and the applicable county (Imperial and/or San Diego) and RWQCB Colorado River Basin RWQCB and/or San Diego Basin RWQCB) at the onset of dewatering. Submit written description of all executed dewatering activities upon completion of such activities at the affected site(s) to the above-mentioned agencies. Monitor in field during construction by periodically checking

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	dewatering efforts shall be verified by the recognized local authority (RWQCB or Department of Planning and Building).			grading activities for groundwater exposure.
Water-7	**Develop master Drought Water Management and Water Conservation Education Programs.** Prior to the onset of construction of the OWEF, a master Drought Water Management Program shall be prepared by the Applicant and submitted to the BLM for approval. The Drought Water Management Program shall provide guidelines on how all future water use will be managed during "severe" drought year(s). During construction and operation, these measures would go into effect during periods of "severe" drought. Once it is determined that a "severe" drought condition exists, restricted (drought) water usage measures shall remain in effect until it is shown satisfactorily to the BLM that the "severe" drought condition no longer exists. This plan shall include, but is not limited to the following measures: • The definition of a "severe" drought year (as defined by the National Oceanic and Atmospheric Administration's (NOAA) Palmer Drought Severity method or other similarly recognized methodology); • Identification of general measures available to reduce water usage for future development (to be refined as needed for each use approved); • Identification of specific measures to be applied for landscape watering; • Determination of appropriate early triggers to determine when "severe" drought conditions exist and process for initiating additional water conservation measures for [tract] and future development. In congruence with the Drought Water Management Program and prior to the onset of construction of the OWEF, the Applicant shall develop and submit to the BLM for approval, a master Water Conservation Education Program for all future operators and employees for use during drought periods. Such a program shall be developed by an appropriate expert for each on-site activity using water. Once the program is developed, the Applicant shall also include the means by which this information will be disseminated to any future operators of the project. The Drought Water Management Program and Water Conservation Education Program shall be implemented throughout the construction, operation, and decommissioning phases of the OWEF. For any year that a "severe drought" state has been recognized, the Applicant shall submit a letter to the BLM by November 1 of that year identifying what measures were implemented to conserve water and to provide water conservation education, as well as the effectiveness of such measures.	BLM	Prior to construction (programs) and during construction, operations, and decommissioning	Submit master Drought Water Management Program (for construction) and master Water Conservation Education Program (for operations) to BLM for review and approval. Monitor in field during construction to ensure measures in program are implemented during periods of "severe" drought until BLM determines the 'severe' drought condition no longer exists. During operations, for any year that a "severe drought" state has been recognized submit a letter to the BLM by November 1 of that year identifying what measures were implemented to conserve water and to provide water conservation education, as well as the effectiveness of such measures.

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Water-8	**Flood and Erosion Structure Damage Protection.** Aboveground project features shall not be placed within waterway protection corridors (floodways) defined by city and county codes, and shall be located outside of known watercourses. Aboveground project features shall be designed and engineered to withstand potential flooding and erosion hazards. Although some project features may need to be placed within 100-year floodplain boundaries, or Flood Hazard Areas, they shall be designed per applicable floodplain development guidelines, including measures such as specially designed footings to withstand flooding associated with a 100-year flood event.	BLM and County of Imperial	Prior to construction	Submit final facility siting design plans to BLM and the County of Imperial for review and approval indicating floodways, known watercourses, 100-year floodplain boundaries, and Flood Hazard Areas.
Water-9	**Construction SWPPP Specifications.** A Construction SWPPP shall be developed for the OWEF. Notices of Intent (NOIs) would be filed with the State Water Resources Control Board (SWRCB) and the applicable RWQCBs (Colorado River Basin RWQCB for activities at the OWEF site, and/or San Diego Basin RWQCB for activities at the proposed water source in Pine Valley). A Waste Discharge Identification Number (WDID) would be obtained prior to the issuance of construction permits. The SWPPP shall be stored at the construction site for reference by construction personnel and for inspection review. The SWPPP shall include BMPs that would be adhered to during construction in order to stabilize graded areas and waterways, and reduce erosion and sedimentation. Such BMPs may include but are not limited to those described below. • Erosion minimizing efforts such as straw wattles, water bars, covers, silt fences, and sensitive area access restrictions (for example, flagging) that would be installed before clearing and grading begins. • Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. • During construction activities, measures would be in place to ensure that contaminants are not discharged from the construction sites. • A silting basin(s) would be established, as necessary, to capture silt and other materials, which might otherwise be carried from the site by rainwater surface runoff. • Straw wattles (or comparably effective devices [as determined by the on-site Civil Engineer, in consultation with the Environmental Monitor]) shall be placed on the downslope sides of the proposed work which would direct flows into temporary sedimentation basins. • The SWPPP shall include a Sedimentation and Erosion Control Plan to minimize the potential for project sediment to leave the OWEF site and result in downstream sedimentation. • All erosion control materials shall be biodegradable and natural fiber. All be BMPs required by the SWPPP shall be checked and maintained regularly and after all larger storm events. All remedial work shall be done immediately after discovery so sedimentation control devices remain in good working order during the entire construction	BLM, County of Imperial, SWRCB, Colorado River Basin RWQCB, and San Diego Basin RWQCB	Prior to construction (SWPPP) and during construction	Submit SWPPP, including Sedimentation and Erosion Control Plan, to the BLM and County of Imperial for review. Submit SWPPP to SWRCB, Colorado River Basin RWQCB (for OWEF site), and San Diego Basin RWQCB (for water source in Pine Valley) for review and approval. Monitor in field during construction to ensure proper implementation of BMPs required by the SWPPP.

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	phase. Proper implementation will be verified by the Environmental Monitor.			
Water-10	**Accidental spill control and environmental training.** Prior to the onset of construction of the OWEF, the following specifications must be provided by the Applicant to the BLM, for actions on BLM lands, and to Imperial County, for actions on County lands: define areas where hazardous materials would be stored, where trash would be placed, where rolling equipment would be parked, fueled and serviced, and where construction materials such as reinforcing bars and structural steel members would be stored. The Applicant shall also prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. These specifications may be included in the project's SWPPP, or may be included as a separate plan. Prior to and during construction, an environmental training program shall be established to communicate environmental concerns and appropriate work practices, including spill prevention and response measures, and SWPPP measures, to all field personnel. A monitoring program shall be implemented to ensure that the plans are followed during all construction, operations and maintenance, and decommissioning activities. Storage of fuels and hazardous materials shall be prohibited within 200 feet of surface water features and private groundwater supply wells, and within 400 feet of community or municipal groundwater supply wells (if it is determined that such wells exist on or in close proximity to the project site). During construction/ground disturbing activities and operation, all vehicles and equipment, including all hydraulic hoses, shall be maintained in good working order so that they are free of any and all leaks that could escape the vehicle or contact the ground, and to ensure that any leaks or spills during maintenance or storage can be easily and properly removed. Compliance will be verified by the Environmental Monitor and the local SWPPP authority at the time of construction.	BLM and County of Imperial	Prior to construction (specifications) and during construction	Submit specifications for accidental spill control and environmental training, including an emergency response program to BLM (for federal lands) and County of Imperial (for County lands) for review and approval. These specifications may be included in the SWPPP (see MM Water-9). Submit documentation supporting the environmental training program to BLM and County of Imperial for review and approval. Monitor in field during construction. Compliance to be verified by the Environmental Monitor and the local SWPPP authority during construction.
Wildland Fire Ecology				
Fire-1	The Applicant shall develop and implement a Fire Safety Plan for use during construction and decommissioning. The Applicant shall submit the Fire Safety Plan, along with maps of the project site and access roads, to BLM FIRE and the Imperial County Fire Marshall for review and approval prior to the issuance of a right of way grant. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following: a. All internal combustion engines used at the project site shall be equipped with spark arresters. Spark arresters shall be in good working order. b. Light trucks and cars shall be used only on roads where the roadway is cleared of vegetation. Mufflers on all cars and light trucks shall be maintained in good working	BLM FIRE and Imperial County Fire Marshall	Prior to construction (plan), and during construction and decommissioning	Submit Fire Safety Plan, along with maps of the project site and access roads to BLM FIRE (for federal lands) and Imperial County Fire Marshall (for County lands) for review and approval prior to issuance of a right of way grant. Monitor in field during construction and decommissioning.

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	order. c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. e. Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. f. The Applicant shall make an effort to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall easily accessible to personnel. g. Smoking shall be prohibited in wildland areas and within 50 feet of combustible materials storage, and shall be limited to paved areas or areas cleared of all vegetation. h. Fires ignited onsite shall be immediately reported to BLM FIRE and the Imperial County Fire Department. i. The engineering, procurement, and construction contract(s) for the proposed project shall clearly state the requirements of this mitigation measure.			
Fire-2	The Applicant shall install an automatic fire extinguishing system that complies with international standards for fire protection systems on each wind turbine generator at the proposed project site. Proof of system installation shall be submitted to BLM and Imperial County prior to energizing the proposed project.	BLM and County of Imperial	Prior to operation	Submit proof of automatic fire extinguishing system installation on all wind turbines to BLM (for federal lands) and County of Imperial (for County lands). Inspect in field, as necessary to confirm compliance.
Veg-1d	See Vegetation Resources, above.	---	---	---
Wildlife Resources				
Air-1	See Air Resources, above.	---	---	---
Veg-1a	See Vegetation Resources, above.	---	---	---
Veg-1d	See Vegetation Resources, above.	---	---	---
Veg-2a	See Vegetation Resources, above.	---	---	---
Veg-2b	See Vegetation Resources, above.	---	---	---
Wild-1a	Prior to ground disturbing activities, an individual shall be designated and approved by the BLM and USFWS as a Designated Biologist (i.e., field contact representative). A Designated Biologist shall be employed for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Each successive Designated Biologist shall be approved by the BLM's Authorized Officer (i.e., BLM field manager, El Centro). The Designated Biologist shall have the authority to ensure compliance with Conservation Measures for the Peninsular	BLM and USFWS	Prior to construction (resumes), during and post-construction	Prior to construction, submit resumes of recommended individual for Designated Biologist position to the BLM and USFWS for review and approval. Designated Biologist to monitor in field during construction and post-construction, as applicable.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	bighorn sheep (PBS) set forth in the Biological Opinion (BO) and with flat-tailed horned lizard (FTHL) mitigation measures included herein and will be the primary agency contact for the implementation of these measures. The Designated Biologist will have the authority and responsibility to halt any proposed OWEF activities that are in violation of the BO Conservation Measures or Mitigation Measures. A detailed list of responsibilities of the Designated Biologist is summarized below. To avoid and minimize effects to biological resources, the Designated Biologist shall: • Notify BLM's Authorized Officer and the USFWS at least 14 calendar days before the initiation of ground disturbing activities. • Immediately notify BLM's Authorized Officer and the USFWS in writing if the project proponent does not comply with any BO Conservation Measures or Mitigation Measures including, but not limited to, any actual or anticipated failure to implement BO Conservation Measures or Mitigation Measures within the periods specified. • Conduct compliance inspections daily during on-going construction as clearing, grubbing, and grading are completed, and submit a monthly compliance report to BLM's Authorized Officer until construction is complete.			
Wild-1b	Biological Monitor(s) shall be employed to assist the Designated Biologist in conducting preconstruction surveys and monitoring ground disturbance, grading, construction, O&M, decommissioning, and restoration activities. The Biological Monitor(s) shall have sufficient education and field experience to understand PBS and FTHL biology, have, experience conducting FTHL field monitoring, be able to identify PBS, PBS sign, FTHL, and FTHL scat, and be able to identify and follow FTHL tracks. The Designated Biologist shall submit a resume, at least three references, and contact information for each prospective Biological Monitor(s) to the BLM and USFWS for approval. To avoid and minimize effects to biological resources, the Biological Monitor(s) will assist the Designated Biologist and Bighorn Sheep Monitor with the following: • Be present during construction activities that take place in PBS Essential Habitat to prevent or minimize harm or injury to PBS. • Be present during construction activities that take place in FTHL habitat to prevent or minimize harm or injury to FTHL. Activities of the Biological Monitor(s) include, but are not limited to, ensuring compliance with all avoidance and minimization measures, monitoring for FTHLs and removing them from harm's way, and checking the staking/flagging of all disturbance areas to be sure that they are intact and that all construction activities are being kept within the staked/flagged limits. • At the end of each work day, inspect all potential wildlife pitfalls (e.g., trenches, bores, other excavations) for wildlife and remove wildlife as necessary. If the potential pitfalls will not be immediately backfilled following inspection, the Biological Monitor will ensure that the construction crew slopes the ends of the excavation (3:1 slope) to provide wildlife escape ramps or will ensure that the construction crew completely and securely covers	BLM and USFWS	Prior to construction (resumes), during construction	Prior to construction, submit resumes, references, and contact information of recommended Biological Monitor(s) to the BLM and USFWS for review and approval. Biological Monitor(s) to monitor in field during construction.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	the excavation to prevent wildlife entry. • During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 29 degrees Celsius (85 degrees Fahrenheit) for the presence of FTHL and remove them per Construction Measure Wild-1r below. • Inspect the site to help ensure trash and food-related waste is place in closed-lid containers and to ensure that workers do not feed wildlife.			
Wild-1c	Prior to proposed OWEF initiation, the Designated Biologist shall develop and implement a WEAP and shall be available in English and Spanish. Wallet-sized cards summarizing the information shall be provided to all construction and O&M personnel. The WEAP will include the following: • Biology and status of the PBS, FTHL, barefoot banded gecko, rosy boa, burrowing owl, other nesting special status birds, and American badger. • Measures to reduce potential effects to the PBS, FTHL, barefoot banded gecko, rosy boa, burrowing owl, other nesting special status birds, and American badger. • An explanation of the function of flagging that designates authorized work areas. • Actions and reporting procedures to be used if PBS, FTHL, barefoot banded gecko, rosy boa, burrowing owl, other nesting special status birds, or American badger are encountered. • Driving procedures and techniques to reduce wildlife species mortality on roads. • The importance of avoiding the introduction of invasive weeds onto the proposed OWEF site and surrounding areas.	BLM , USFWS, CDFG	Prior to construction	Prior to project initiation, submit WEAP to BLM for review and approval and to USFWS and CDFG for review. Designated Biologist to monitor in field during construction.
Wild-1d	The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of construction materials and spoils) shall be delineated with stakes and flagging prior to construction activities. Spoils will be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. To the extent possible, disturbance of shrubs and surface soils due to stockpiling shall be minimized. All disturbances, vehicles, and equipment shall be confined to the flagged areas.	BLM and County of Imperial	Prior to construction	Monitor in field
Wild-1e	Speed limits along all access roads shall not exceed 15 miles per hour in order to minimize dust during construction and O&M activities. A Fugitive Dust Control Plan shall be prepared to address fugitive dust during construction (see Mitigation Measure Air-1 in section 4.2.10).	BLM and County of Imperial	During construction	Monitor in field during construction.
Wild-1f	To the maximum extent practicable, grading in FTHL habitat shall be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 24 degrees Celsius (75 degrees Fahrenheit) and 38 degrees Celsius (100 degrees Fahrenheit). If grading cannot be conducted during this time, any FTHLs found shall be removed to nearby habitat away from proposed OWEF components and roads where suitable burrowing habitat exists.	BLM and County of Imperial	During construction	Monitor in field during construction.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Wild-1g	FTHLs shall be removed from harm's way during all construction activities. FTHL removal shall be conducted by two or more Biological Monitors when construction activities are being conducted in occupied FTHL habitat. To the extent feasible, methods to find FTHLs will be designed to achieve a maximal capture rate and shall include, but not be limited to, using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort shall be 30 minutes per 0.40 hectare (1 acre). Persons that handle FTHLs shall first obtain all necessary permits and authorization from the CDFG. FTHL removal surveys also shall include: • Accurate records maintained by the Biological Monitors for each relocated FTHL including sex, snout-vent length, weight, air temperature, location, date, time of capture and release, a close-up photo of the lizard, and a photo of the habitat where it was first encountered. To the extent feasible, a sample of the lizard scat shall be collected. A Horned Lizard Observation Data Sheet and a Project Reporting Form, from Appendix 8 of the FTHL Rangewide Management Strategy (FTHL Interagency Coordinating Committee [ICC] 2003) shall be completed. During construction, quarterly reports describing FTHL removal activity shall be submitted to the BLM, USFWS, and CDFG. • The removal of FTHLs out of harm's way shall include the relocation to nearby suitable habitat away from proposed OWEF components and roads. Relocated FTHLs shall be placed in the shade of a large shrub in undisturbed habitat. The Designated Biologist or Biological Monitor shall be allowed some judgment and discretion when relocating lizards to maximize survival of FTHLs found on the proposed OWEF site.	BLM and County of Imperial	During construction	Monitor in field during construction. Obtain necessary permits and authorizations from CDFG and USFWS to handle FTHLs, if required. Submit to BLM and County of Imperial for review.
Wild-1h	To compensate the loss of occupied FTHL habitat, the FTHL Rangewide Management Strategy allows for the purchase of FTHL habitat and/or monetary compensation, as determined by the FTHL Interagency Coordinating Committee. Permanent impacts to 30.3 acres and temporary impacts to 107.1 acres of occupied FTHL habitat from the Proposed Action shall be mitigated at a 1:1 ratio. If off-site purchase of FTHL habitat is proposed, the Applicant shall obtain approval of the BLM, FTHL Interagency Coordinating Committee, and Wildlife Agencies prior to the purchase, and shall ensure long-term management and protection of the land through the following: • Prepare a Property Assessment Report (PAR) tailored to the specific acquisition to determine the long-term management funding; and • The land shall be deeded and transferred to the BLM and managed consistent with the management activities outlined in the FTHL Rangewide Management Strategy.	BLM, FTHL Interagency Coordinating Committee, and Wildlife Agencies (USFWS, CDFG)	Prior to construction	Submit Property Assessment Report to BLM, FTHL Interagency Coordinating Committee, and Wildlife Agencies (USFWS, CDFG) for review and approval.
Wild-1i	Minimize night lighting during construction by using shielded directional lighting that is pointed downward thereby avoiding illumination to adjacent natural areas and the night sky.	BLM and County of Imperial	During construction	Monitor in field during construction.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Wild-1j	Implement a Raven Control Plan (prepared and approved by BLM prior to construction) for the portion of the proposed OWEF within occupied (and assumed occupied) FTHL habitat. The Raven Control Plan shall identify the purpose of conducting raven control and include, at a minimum, training on how to identify raven nests and how to determine whether a nest belongs to a raven or a raptor species; describe the seasonal limitations on disturbing nesting raptors; describe raven control methods to be employed (e.g. perching and nesting deterrents); and describe procedures for documenting the activities on an annual basis. The plan shall provide details on the specific measures for storage and disposal of all litter and trash to discourage scavengers that may prey on the FTHL. The methods and reporting requirements shall be developed to be consistent with the monitoring and reporting requirements of the Raven Control Plan prepared for the Sunrise Powerlink project, which crosses through the proposed OWEF.	BLM	Prior to construction (plan) and during construction.	Monitor in field during construction to ensure implementation of the Raven Control Plan.
Wild-1k	Prior to the start of construction, all areas not previously surveyed for barefoot banded gecko shall be surveyed in accordance with the survey protocol for the species (CDFG 2010). If barefoot banded gecko is determined to be present within the proposed OWEF footprint, or within 50 feet of the proposed OWEF footprint, the proponent shall be required to obtain a 2081 permit for incidental take of the species prior to the start of construction and comply with the conditions of the permit during construction and O&M.	BLM and County of Imperial	Prior to construction	Submit survey reports to BLM and County of Imperial for review. Submit 2081 permit, if required.
Wild-1l	Prior to the start of construction, all areas not previously surveyed for burrowing owl shall be surveyed during the burrowing owl breeding season in accordance with the California Burrowing Owl Consortium (CBOC) Guidelines (1993).	BLM and County of Imperial	Prior to construction	Submit survey reports to BLM and County of Imperial for review.
Wild-1m	Construction piping or any other construction material with a diameter greater than three inches shall be capped or covered if the piping or materials are to be stored in staging areas or temporary impact areas for more than three days. If construction piping or construction materials greater than three inches in diameter are not covered or capped, they shall be inspected by the Designated Biologist or Biological Monitor prior to being moved or buried.	BLM and County of Imperial	During construction	Monitor in field during construction.
Wild-1n	The loss of 26 acres of burrowing owl foraging habitat within 300 feet of occupied burrows shall be mitigated at a 1:1 ratio through a combination of off-site habitat compensation, on-site revegetation of temporary impact areas, and/or on-site or off-site restoration of disturbed habitat.	BLM, USFWS, CDFG	Prior to construction (plan) and post-construction	Submit HRRP to BLM, USFWS, and CDFG for review and approval. Monitor in field.
Wild-1o	The Applicant shall develop an Eagle Conservation Plan to address proposed OWEF impacts to golden eagles. The project proponent shall prepare and submit an Eagle Conservation Plan to the BLM and Wildlife Agencies for review and approval prior to initiation of proposed OWEF construction. The Eagle Conservation Plan shall be prepared in accordance with the Draft Eagle Conservation Plan Guidance (USFWS 2011b). The Eagle Conservation Plan shall describe the golden eagle studies completed for the proposed OWEF; a risk analysis; advanced conservation practices to be implemented during operations, including a description of the adaptive management strategy for the proposed OWEF and compensatory mitigation; and post-construction monitoring and reporting procedures for golden eagles.	BLM and Wildlife Agencies (USFWS, CDFG)	Prior to construction (plan) and post-construction	Submit Eagle Conservation Plan to BLM and Wildlife Agencies (USFWS, CDFG) for review and approval. Monitor post-construction per the monitoring and reporting procedures in the plan.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
Wild-1p	The Applicant will develop an Avian and Bat Protection Plan to address proposed OWEF impacts to special status avian and bat species and will submit the plan to the BLM, USFWS, and CDFG for review and approval prior to initiation of proposed OWEF construction. The Avian and Bat Protection Plan shall be prepared in accordance with the interim guidance provided by USFWS (2010). The Avian and Bat Protection Plan shall describe proposed OWEF design features and advanced conservation practices to be used to minimize the risk of collision pre-construction, during construction, and during O&M. The plan shall include monitoring, adaptive management, and reporting procedures. The post-construction monitoring methods shall be based on the California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC 2007).	BLM, USFWS, CDFG	Prior to construction (plan) and post-construction.	Submit Avian and Bat Protection Plan to BLM, USFWS, and CDFG for review and approval. Monitor in field post-construction.
Wild-1q	Temporary impacts to 129.5 acres of USFWS Essential Habitat for PBS from the Proposed Action shall be mitigated at a 1:1 ratio through revegetation of all temporary impact areas. Prior to the start of construction, a HRRP shall be prepared and approved in writing by BLM, USFWS, and CDFG in accordance with Mitigation Measure Veg-2b (see Veg-2b for details). The HRRP shall address revegetation of habitats for special status wildlife species, including but not limited to PBS, FTHL, and burrowing owl. If after five years of monitoring, there are areas that do not meet the success criteria outlined in the HRRP, these areas shall be compensated off site at a 1:1 ratio of equal or better quality habitat compared to what was impacted, in accordance with Mitigation Measure Veg-2a.	BLM, USFWS, CDFG	Prior to construction (plan) and post-construction	Submit HRRP to BLM, USFWS, and CDFG for review and approval. Monitor in field.
Wild-1r	The Proposed Action's permanent impacts to 43.9 acres of USFWS Essential Habitat would be compensated at a 1:1 ratio by purchasing or restoring Essential Habitat from private landowners, which shall be made permanently available for PBS. "Available" is defined as habitat located in or immediately adjacent to the Essential Habitat line, as delineated in the Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California (USFWS 2000).	BLM, USFWS, CDFG	Prior to construction (plan) and post-construction	Submit HRRP to BLM, USFWS, and CDFG for review and approval. Monitor in field.
Wild-1s	Prior to construction, a Bighorn Sheep Mitigation and Monitoring Plan shall be submitted to the BLM, USFWS, and CDFG for review and approval. The monitoring plan shall describe the monitoring and reporting procedures and the construction limitations to be implemented if sheep are observed in the proposed OWEF site.	BLM, USFWS, CDFG	Prior to construction (plan) and during construction.	Submit Bighorn Sheep Mitigation and Monitoring Plan to BLM, USFWS, and CDFG for review and approval. Monitor in field during construction.
Wild-1t	A biological consultant approved by the BLM, USFWS, and CDFG shall be retained by the Applicant to serve as the Bighorn Sheep Monitor of construction activities within USFWS Essential Habitat on the proposed OWEF site, in accordance with the Bighorn Sheep Mitigation and Monitoring Plan for the proposed OWEF. The Bighorn Sheep Monitor shall be present if proposed OWEF activities are planned within 300 meters (approximately 1,000 feet) of Essential Habitat. If PBS are observed within the Action Area, no construction activities shall be conducted within 1,000 feet of the sheep until the Bighorn Sheep Monitor verifies that the sheep have moved to at least 1,000 feet from planned activities. If the Bighorn Sheep Monitor determines that proposed OWEF activities are unlikely to adversely affect or disrupt normal behavior of the PBS, planned activities may proceed. If the Bighorn Sheep Monitor is not present on site when sheep are observed, all proposed OWEF activities	BLM, USFWS, CDFG	Prior to construction (resumes), during construction	Prior to construction, submit resumes of recommended Bighorn Sheep Monitor to the BLM, USFWS, and CDFG for review and approval. Bighorn Sheep Monitor to monitor in field during construction. Submit daily monitoring reports.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	within 1,000 feet of Essential Habitat will stop, and the Bighorn Sheep Monitor shall be contacted immediately for guidance on how to proceed with planned activities. The Bighorn Sheep Monitor shall have complete access to the Applicant's proposed biological observation tower and radar and camera system. The Bighorn Sheep Monitor shall prepare daily monitoring reports that will be submitted to the Designated Biologist and BLM, as well as to the USFWS and CDFG (if requested).			
Wild-1u	The Designated Biologist or Biological Monitor(s) will evaluate and implement the best measures to reduce FTHL and other wildlife species mortality along access and maintenance roads, particularly during the active period (March 1 through September 30). These measures will include: • A speed limit of 15 miles per hour in occupied FTHL habitat, and all vehicles must remain on designated access/maintenance roads. • Pedestrian access outside the limits of the designated access/maintenance roads is permitted year-round as long as no ground disturbing activities take place (e.g., vegetation treatment and weed management or other activities that would require soil disturbance beyond pedestrian footprints). • Any O&M activity that may result in ground disturbance outside the designated access/maintenance roads shall be conducted outside the FTHL active period whenever feasible. • If any O&M activity must be conducted during the FTHL active period that may result in ground disturbance, such as weed management or vehicular access off of a designated access/maintenance road, the Designated Biologist or a Biological Monitor shall be present during such activity to ensure that no FTHL mortality results.	BLM and County of Imperial	During operations	Monitor in field.
Wild-1v	No later than January 31 of each year the proposed OWEF remains in operation, the Designated Biologist shall provide the BLM's Authorized Officer, USFWS, CDFG, and FTHL Interagency Coordinating Committee an annual FTHL Status Report that will include at a minimum: • A general description of the status of the Action Area. • Information from the Annual Compliance Report documenting compliance/non-compliance with each avoidance and minimization measure. • An assessment of the effectiveness of each avoidance and minimization measure. • A completed Project Reporting Form from Appendix 8 of the FTHL Rangewide Management Strategy (FTHL ICC, 2003). • A summary of information regarding any FTHL mortality in conjunction with the Wildlife Mortality Reporting Program (Mitigation Measure Wild-1hh). • Recommendations on how the avoidance and minimization measures might be changed to more effectively avoid or minimize future effects to FTHL.	BLM, USFWS, CDFG, and FTHL Interagency Coordinating Committee	During operations	Submit annual FTHL Status Report.
Wild-1w	Implement the Raven Control Plan.	BLM and County of Imperial	During operations	Monitor in field.

Mitigation Monitoring and Reporting Program

MM No.	Mitigation Measure	Monitoring Responsibility	Timing	Monitoring/Reporting Method
Wild-1x	An annual report shall be prepared by the Designated Biologist and submitted to the relevant resource agencies documenting the implementation of the following programs/plans as well as compliance/non-compliance with each avoidance and minimization measure. • Weed Management Plan • WEAP • HRRP • Wildlife Mortality Reporting Program • Raven Control Plan • Bighorn Sheep Mitigation and Monitoring Plan	BLM, County of Imperial, USFWS, CDFG	During operations	Submit annual report to relevant resource agencies.
Wild-1y	The HRRP shall be implemented in accordance with Mitigation Measure Veg-2b.	BLM, USFWS, CDFG	During operations	Submit HRRP to BLM, USFWS, and CDFG for review and approval. Monitor in field.
Wild-1z	Implement the Integrated Weed Management Plan. Invasive weeds and non-native plants shall be controlled during O&M for the life of the proposed OWEF according to the measures provided in the proposed OWEF's Integrated Weed Management Plan.	BLM and County of Imperial	Prior to construction (plan), during and post-construction	Submit Integrated Weed Management Plan to BLM and the County of Imperial for review and approval prior to construction. Monitor in field during and after construction to ensure compliance with the plan.
Wild-1aa	Night lighting shall be minimized by using directional lighting that is shielded down away from the surrounding natural areas and the night sky. Night lighting during O&M shall be minimized to the amount necessary to meet FAA standards. Lighting on wind turbine generators (WTGs) shall include the minimum number of flashes and the briefest flash duration to meet FAA standards. The proposed directional motion activated security lighting at the O&M building shall be shielded down.	BLM and County of Imperial	During operations	Monitor in field.
Wild-1bb	Implement the Avian and Bat Protection Plan.	BLM and County of Imperial	During operations	Monitor in field.
Wild-1cc	Project transmission lines shall conform to Avian Power Line Interaction Committee (APLIC) standards for collision-reducing techniques (APLIC 2006).	BLM and County of Imperial	Prior to construction	Project design documents shall be submitted to the BLM and County of Imperial for review and approval.
Wild-1dd	A biological consultant approved by the BLM, USFWS, and CDFG shall be retained by the Applicant to conduct a post-construction bird and bat species mortality monitoring program in accordance with the monitoring and reporting methods of the Eagle Conservation Plan (Mitigation Measure Wild-1o) and Avian and Bat Protection Plan (Mitigation Measure Wild-1p).	BLM, USFWS, CDFG	During operations	Monitor in field. Submit monitoring reports.
Wild-1ee	Prepare and receive approval from the BLM of a Wildlife Mortality Reporting Program. This program shall be implemented during O&M and calls for the identification and reporting of any dead or injured animals observed by personnel conducting O&M activities. Reporting is necessary during construction and O&M to demonstrate compliance with the avoidance and	BLM and USFWS	During operations	Submit Wildlife Mortality Reporting Program to BLM for review and approval. Monitor in field. Submit monitoring reports, as necessary.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	minimization measures, to assess the effectiveness of the measures, and to make recommendations, if necessary, for future compliance. An appropriate reporting format shall be developed in coordination with the BLM and USFWS.			
Wild-1ff	Implement the Eagle Conservation Plan.	BLM and County of Imperial	During operations	Monitor in field.
Wild-1gg	The Designated Biologist, Biological Monitor(s), and/or Bighorn Sheep Monitor shall evaluate and implement the best measures to minimize PBS disturbance. These measures will include: • The Bighorn Sheep Monitor shall monitor O&M activities in accordance with the measures described in the Bighorn Sheep Mitigation and Monitoring Plan. If PBS are observed or detected by the Designated Biologist, Monitoring Biologist, Bighorn Sheep Monitor, or the Merlin Avian Radar System within the Project Area, no O&M activities shall be conducted within 1,000 feet of the sheep until the Bighorn Sheep Monitor verifies that the sheep have moved to at least 1,000 feet from planned activities. If the Bighorn Sheep Monitor determines that proposed OWEF activities are unlikely to adversely affect the sheep or disrupt normal behavior, planned activities could proceed. If the Bighorn Sheep Monitor is not present on site when sheep are observed, all activities shall stop and the Bighorn Sheep Monitor shall be contacted immediately for guidance on how to proceed with planned activities. O&M activities could proceed when the Bighorn Sheep Monitor/Designated Biologist verifies that the sheep have moved to at least 1,000 feet from planned activities or determines that proposed OWEF activities are unlikely to adversely affect the sheep or disrupt normal behavior. • The Applicant's proposed Advanced Biological Operations Command and Control Center (ABOCC) observation tower shall be used to monitor for PBS (in addition to raptor species). A Merlin Avian Radar System would be installed on top of the tower and would include horizontal-band and vertical-band radar and a high-resolution video camera. The video camera has night vision video system for documenting PBS during the night as well as the day. The 50-foot tall tower would include a 360-degree view of the site from an enclosed, air-conditioned control room as well as radar monitors, video monitors and controls, and radio telemetry data monitors for monitoring for PBS and avian species. • The Applicant will employ a biologist at the ABOCC observation tower full time for the first three years of operation, and potentially up to an additional two years of operations, depending on the success of the monitoring. The success of the monitoring will be determined by the monitoring biologist in coordination with USFWS, CDFG, and BLM. The monitoring biologist shall be approved by the BLM and USFWS. The two primary responsibilities of the biologist shall be to monitor for PBS and raptors. The Merlin Avian Radar System is expected to detect PBS movements within the Project Area and this information will be used to determine the areas where O&M activities should be avoided in accordance with this mitigation measure.	BLM and County of Imperial	During operations	Monitor in field.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	• The Bighorn Sheep Monitor shall have complete access to the Applicant's proposed ABOCC observation tower and radar and camera system. • All vehicles must remain on designated access/maintenance roads. • The biological consultant retained to collect data on PBS movements in the Project Area during the construction phase (Mitigation Measure Wild-2e) shall also be retained to collect data on PBS movements in the project area during the first three years of operation of the OWEF.			
Wild-1hh	No later than January 31 of each of the first three years the OWEF remains in operation, the Designated Biologist will provide the BLM's Authorized Officer, USFWS, and CDFG an annual PBS Status Report that will include at a minimum: • A general description of the status of the Action Area. • Information from the Annual Compliance Report documenting compliance/non-compliance with each avoidance and minimization measure. • An assessment of the effectiveness of each avoidance and minimization measure. • A summary and map of PBS sightings in the Action Area. • Recommendations on how the avoidance and minimization measures might be changed to more effectively avoid or minimize future effects to PBS.	BLM, USFWS, CDFG	During operations	Submit annual PBS Status Report to BLM, USFWS, and CDFG.
Wild-2a	A survey shall be conducted within 30 days prior to the initiation of construction by a qualified biologist to determine the presence or absence of the burrowing owl in the construction zone plus 250 feet beyond. If the burrowing owl is absent, then no mitigation is required. If the burrowing owl is present, no disturbance shall occur within 250 feet of occupied burrows during the breeding season (February 1 through August 31) or within 50 meters (approximately 160 feet) of occupied burrows during the non-breeding season (September 1 through January 31; CDFG 1995). The results of the pre-construction burrowing owl survey shall be provided to BLM and CDFG for review and concurrence prior to the start of construction. Passive relocation of owls shall be implemented prior to construction only at the direction of the CDFG, and only if the above-described occupied burrow disturbance absolutely cannot be avoided (e.g., due to physical or safety constraints). Relocation of owls shall only be implemented during the non-breeding season (September 1 through January 31; CDFG, 1995). A Burrowing Owl Mitigation and Monitoring Plan shall be submitted to the BLM's Authorized Officer and CDFG for review and approval prior to passive relocation.	BLM and CDFG	Prior to construction	Submit survey reports to BLM and CDFG for review and concurrence. Submit Burrowing Owl Mitigation and Monitoring Plan to BLM and CDFG for review and approval prior to passive relocation.
Wild-2b	Vegetation clearing shall take place outside of the general avian breeding season (February 15-September 1), when feasible. If vegetation clearing cannot occur outside the avian breeding season, the Designated Biologist/Biological Monitor shall conduct a preconstruction survey for nesting birds no more than 7 days prior to vegetation clearing. If no active nests are found, clearing can proceed. If active nests are found, no clearing would be allowed within 100 feet of the active nests until the Designated Biologist determines the nest is no longer active or the nest fails. The Designated Biologist/Biological Monitor shall submit the	BLM and appropriate agencies (USFWS, CDFG)	Prior to construction	If vegetation clearing cannot occur outside the avian breeding season, submit pre-construction nesting bird surveys to BLM and appropriate agencies. Monitor in field.

Mitigation Monitoring and Reporting Program				
MM No.	**Mitigation Measure**	**Monitoring Responsibility**	**Timing**	**Monitoring/Reporting Method**
	results of the pre-construction nesting bird surveys to BLM and appropriate agencies.			
Wild-2c	A qualified biologist shall survey for American badger concurrent with the pre-construction survey for burrowing owl. If badgers are detected, the biologist shall passively relocate badgers out of the work area prior to construction if feasible. If an active den is detected within the work area, the project proponent shall avoid the den, if feasible, until the qualified biologist determines the den is no longer active. Dens that are determined to be inactive by the qualified biologist shall be collapsed by hand to prevent occupation of the den between the time of the survey and construction activities.	BLM and CDFG	Prior to construction	Submit survey report to BLM and CDFG for review and concurrence.
Wild-2d	Construction and O&M of WTGs within 1,200 meters (approximately 3,900 feet) of PBS lambing sites shall be avoided during the PBS lambing season (i.e., January 1 through June 30). For the Proposed Action, 8 WTGs (WTGs 22-28 and WTG 77) are proposed within 1,200 meters of 2010 lambing sites in the I-8 Island (i.e., the area between the eastbound and westbound lanes of I-8, the northern portion of which is in the Project Area), and there is direct line of sight between the lambing areas and the proposed WTGs. In addition, four additional WTGs (WTGs 19-21 and WTG 29) would not be constructed during the lambing season because the access road to these WTGs would also be restricted from use by heavy equipment during the lambing season. Furthermore, site preparation and use of the rail unloading area shall be avoided during the lambing season. The Bighorn Sheep Monitor shall coordinate with USFWS and CDFG to help determine the locations of any nearby lambing sites being used prior to and during the construction period of the proposed OWEF.	BLM and County of Imperial	During construction	Monitor in field during construction.
Wild-2e	A biological consultant approved by the BLM and wildlife agencies shall be retained by the Applicant to collect data on PBS movements in the Project Area during the construction phase. The study methods shall be described in the Bighorn Sheep Mitigation and Monitoring Plan and submitted to the BLM, USFWS, and CDFG for review and approval.	BLM, USFWS, CDFG	Prior to construction (resumes), during construction	Prior to construction, submit resumes of recommended biological consultants for PBS to the BLM, USFWS, and CDFG for review and approval. Submit Bighorn Sheep Mitigation Monitoring Plan for review and approval.

Appendix J

CEQA Environmental Checklist

Appendix J

CEQA Environmental Checklist

Initial Study
for the
Ocotillo Express Wind Project

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Initial Study
for the
Ocotillo Express Wind Project

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1. PROJECT DESCRIPTION

1.1 Project Title

The Ocotillo Express Wind Project

1.2 Lead Agency and Contact Person

Angelina Havens, Planner III
Imperial County Planning Division
County Administrative Offices
940 West Main Street
El Centro, California 92243-2875
(760) 482-4236

1.3 Location

Pattern Energy (Applicant), through Ocotillo Express LLC (OE LLC), proposes to construct, operate, maintain, and decommission the Ocotillo Express Wind Project (Project), a 550-megawatt (MW) wind generation facility on approximately 15,000 acres in Imperial County, California, west of the unincorporated community of Ocotillo (Figure 1).

The proposed Project would be located almost entirely on BLM administered lands in the Imperial Valley, approximately five miles west of the unincorporated community of Ocotillo. The Imperial Valley has been recognized as an area having high renewable energy development potential. A new high-voltage transmission line designed to foster development of renewable resources, known as the Sunrise Powerlink (SPL), has been approved by the BLM and other regulatory agencies. The SPL crosses the proposed Project site (Figure 2), facilitating interconnection of the proposed Project and transmission of its renewable energy output to key load centers in southern California.

A portion of the Imperial Highway runs through the proposed Project site in a northwest to east direction, as well as the Interstate 8 (I-8), which crosses a portion of the southern area of the proposed Project site (Figure 2). The Evan Hewes Highway is located east of the proposed Project site, traversing from northeast to southwest and merges with the Imperial Highway. Additionally, Highway 98 crosses the northeast portion of Site 2 of the proposed Project site, and eventually connects to I-8.

The proposed Project site currently has existing access via I-8 to the south and/or the Imperial Highway, which crosses near the center of the proposed Project site.

1.4 General Plan Designation and Zoning

The majority of the proposed Project site is located within the BLM's California Desert Conservation Area Plan, and a small portion of private lands are located within the Imperial County jurisdiction. The proposed Project site is located completely within Imperial County's Ocotillo Nomirage Community Area Plan. The majority of the portions of the proposed Project site under this County Plan are designated as Open Space, with a percentage located within the Floodway designation. Only passive recreational uses are allowed within the Open Space designation. The remaining portions are located

within the Desert Residential designation, which allows very low density residential land uses, and the Government/Special Public zone, which does not allow for wind energy development.

1.5 Environmental Setting

The proposed Project would be located in an area falling under the BLM's California Desert Conservation Area Plan (CDCA). The *California Desert Conservation Area Plan, as Amended* (BLM, 1999), identifies wind energy development as an authorized use of public lands, consistent with the CDCA Plan and NEPA. Consequently, public lands located in the CDCA are not restricted from wind energy development.

The proposed Project site currently consists of undeveloped range land. A number of BLM rough bladed or two-tracked surface roads cross the proposed Project site. The San Diego and Arizona Eastern Railway (SD&AE), owned by the San Diego Metropolitan Transit System, crosses the proposed Project site and this line connects with the Santa Fe Railway.

The Emory Ranch Airport is located outside of the proposed Project site boundaries, approximately 0.25 mile from the boundary of Site 1 of the proposed Project site.

The proposed Project would be located south of several large quarries in the southern foothills of the Coyote Mountains, and would be located approximately eight miles west of the large gypsum sheetrock manufacturing plant located in the unincorporated community of Plaster City. The proposed Project would be located approximately two miles west of the proposed Imperial Valley solar thermal plant. The nearest sensitive receptors are located immediately south of the northeastern portion of the proposed Project site in the unincorporated community of Ocotillo and east of the southeast portion of the proposed Project in the unincorporated community of Coyote Wells.

The site is located immediately north of the Jacumba Wilderness, approximately two miles east of the Yuha Area of Critical Environmental Concern, approximately 1.5 miles southwest of the Plaster City Off-Highway Vehicle Open Area, approximately one mile south of the Coyote Mountains Wilderness, and adjacent to Anza-Borrego Desert State Park and the Jacumba Mountain Wilderness. The proposed Project would be potentially visible from these special land use areas.

The proposed Project also would be located approximately five miles southwest of the Naval Reservation Target 103, which is identified as a live bombing area and also used as a military flight training corridor.

1.6 Proposed Project

The proposed Project consists of the construction, operation, maintenance, and decommissioning of wind turbine generators and associated facilities necessary to successfully generate up to 550 MWs of electrical energy. As shown on Figure 2, the Project site consists of two site areas: the main northwestern site (Site 1) with an approximate acreage of 13,494 consists of Phase 1 and 2 turbines; the smaller southeastern site (Site 2) with an approximate acreage of 1,483 consists of Phase 2 turbines only.

Facilities for the proposed Project would consist of 193 WTGs, an electrical collection system for collecting the power generated by each WTG, an electrical substation, access roads, and an operation and maintenance (O&M) building. The proposed Project would be constructed in two phases: Phase I would comprise 299 MWs and Phase II would comprise 251 MWs. Construction of each of the two phases of

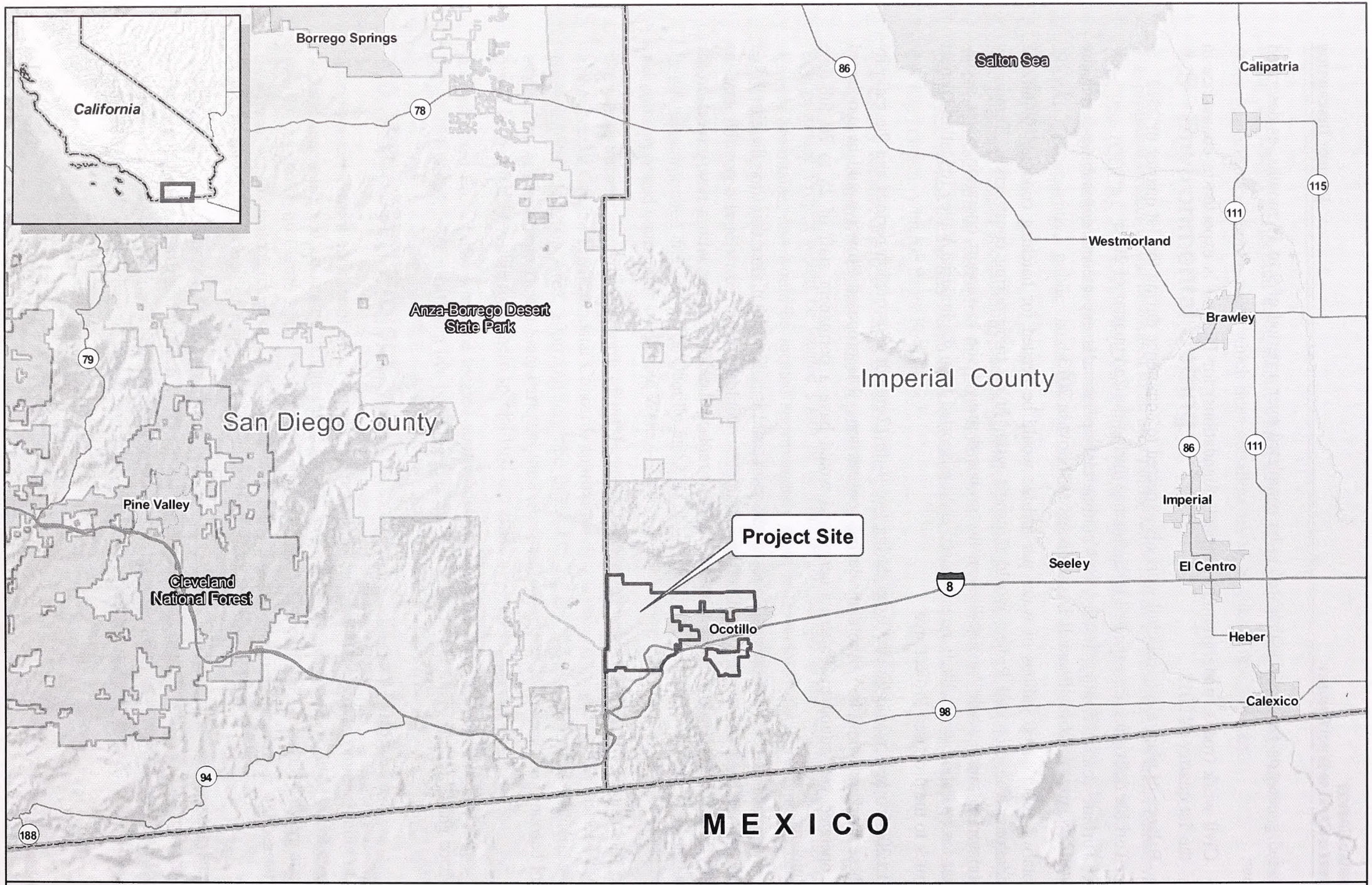
the wind generation facility is anticipated to be completed over a period of 9 to 12 months, as described below:

- Civil work (roads, underground electrical, foundations) for Phase 1 is expected to commence in the 1st quarter of 2012
- Balance of plant electrical/civil works is expected to commence during the 1st quarter of 2012
- Turbine deliveries are expected to commence during the 2nd quarter of 2012
- Turbine commissioning, testing, and commercial operation is expected to commence during the 4th quarter of 2012. Phase II is anticipated to follow in 2013.

A total of about 1,000 gallons of water per turbine would be needed for batching concrete for turbine foundations. The proposed Project would transport water in by truck during construction. Temporary water storage tanks would be installed on the proposed project site to support operation water needs. Water for operation would likely be purchased and transported from the Imperial Valley Irrigation District by truck to the proposed Project area.

Up to 300 workers would be employed during two 9- to 12-month construction periods and the majority of these workers would be onsite daily during construction. The proposed Project would be monitored and operated year-round by Pattern Energy and would have a permanent staff of 28 to 30 full-time technicians.

The anticipated life of the proposed Project is 30 years, and it is likely that after that time the site would be decommissioned and existing facilities and equipment would be removed. It is also possible that the facility owners may wish to work with the BLM to replace the old facilities with a new project on the same site.



Aspen Environmental Group

Figure 1

Project Location Map

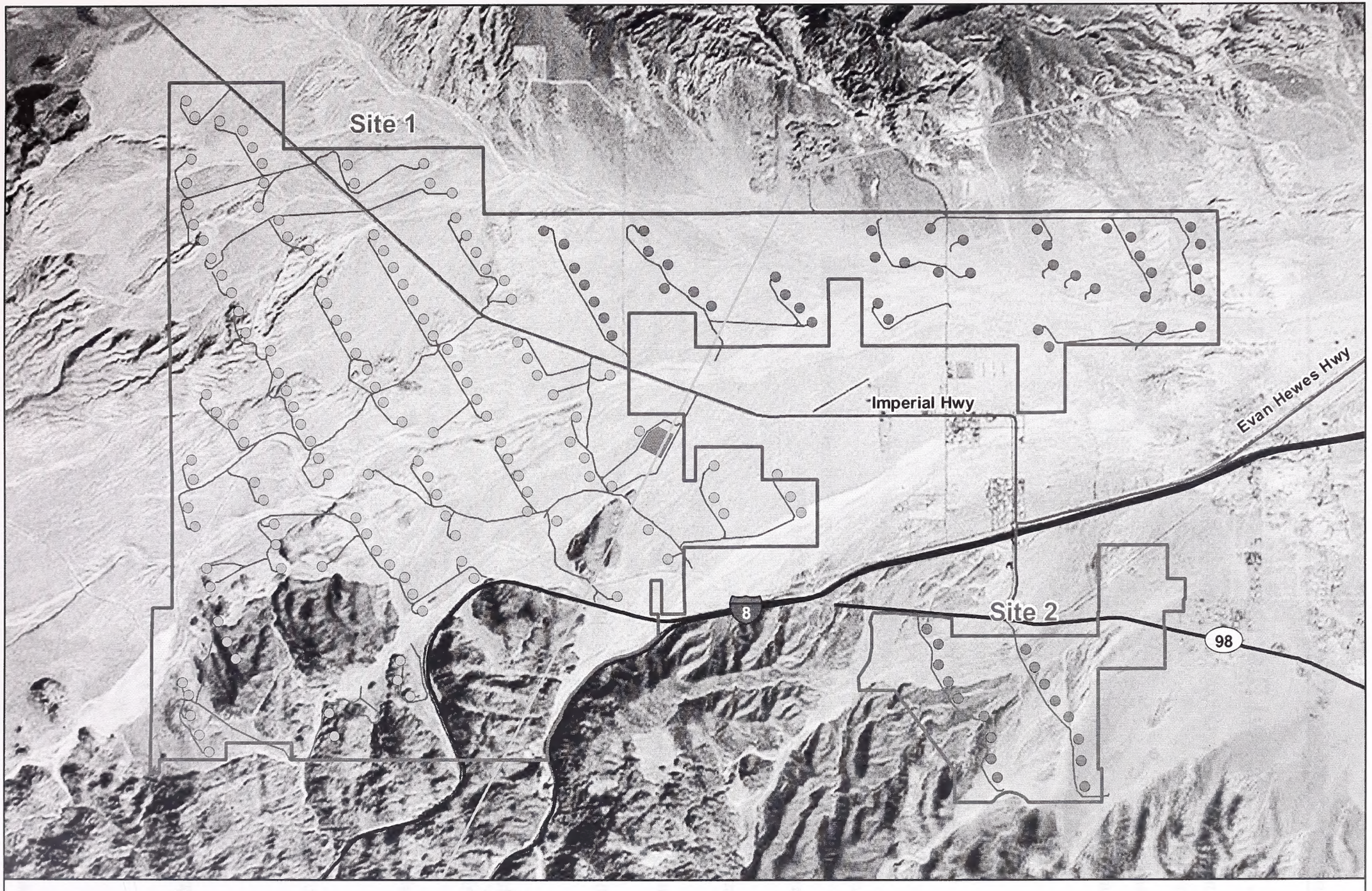


Figure 2
Site Plan

1.7 Proposed Discretionary Actions/Required Approvals

Construction and operation of the proposed Project may require the following discretionary actions and approvals:

Federal

Bureau of Land Management

- Draft Planning Analysis (PA)/Draft EIS/EIR
- Proposed PA/Final EIS/EIR
- Record of Decision (ROD)
- Land Use Plan Amendment
- Native American Consultation
- Right of Way (ROW) Grant
- National Historic Preservation Act, Section 106 Compliance

Bureau of Land Management, State Office

- Archeological Resources Protection Act, Cultural Resource Use Permit

Bureau of Land Management, El Centro Field Office

- Fieldwork Authorization

Federal Aviation Administration (FAA)

- Determination of No Hazard to Air Navigation

United States Fish and Wildlife Service (USFWS)

- Biological Opinion/Endangered Species Act/Section 7 Consultation

United States Army Corps of Engineers (USACE)

- Nationwide Permit 12/Clean Water Act Section 404

State

California Energy Commission

- Renewables Portfolio Standards (RPS) Certification

California Department of Transportation

- Right-of-way (ROW) Encroachment Permit
- Transportation Permit

Colorado River Regional Water Quality Control Board (RWQCB) Region 7

- National Pollutant Discharge Elimination System (NPDES) Permit
- Stormwater Pollution Prevention Plan (SWPPP)
- Water Quality Certification/Clean Water Act Section 401

Native American Heritage Commission

- Consultation on Sacred Areas to comply with State requirements

Local

Imperial County

- Conditional Use Permit/Variance (Turbines and Meteorological Towers on private lands)
- ROW Encroachment Permit
- Septic System Permit (on private lands)
- Building, Grading Permits (on private lands)

2. Environmental Determination

2.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the proposed Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☒ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials	☒ Hydrology/Water Quality
☒ Land Use/Planning	☒ Mineral Resources	☒ Noise
☒ Population/Housing	☒ Public Services	☐ Recreation
☒ Transportation/Traffic	☒ Utilities and Service Systems	☒ Mandatory Findings of Significance

2.2 Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

Printed Name _____

3. Probable Environmental Effects

The following discussion addresses impacts to various environmental resources per the Environmental Checklist Form contained in Appendix G of the State CEQA Guidelines.

3.1 Aesthetics

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AESTHETICS. Would the project:				
(a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
(c) Substantially degrade the existing visual character or quality of the site and its surroundings	☒	☐	☐	☐
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

(a) The proposed Project would potentially have a substantial adverse effect on a scenic vista. Placement of wind turbines with a height up to 450 feet high in the southern foothills of the Coyote Mountains would alter the views of the proposed Project area. A portion of the Imperial Highway runs through the proposed Project site in a northwest to east direction, as well as the Interstate 8 (I-8), which crosses a portion of the southern area of the proposed Project site (Figure 2). The Evan Hewes Highway is located east of the proposed Project site, traversing from northeast to southwest and merges with the Imperial Highway. Additionally, Highway 98 crosses the northeast portion of Site 2 of the proposed Project site, and eventually connects to I-8. Persons traveling in vehicles on these highways or nearby roads would observe alterations to these scenic vistas. Additionally, recreational users of the proposed Project area would observe alterations to these scenic vistas as well. The proposed Project would potentially result in significant alteration to existing scenic vistas and, therefore, this potential impact will be further evaluated in the EIR.

(b) The proposed Project would potentially damage scenic resources, including, a state scenic highway. The proposed Project would not be visible from any Officially Designated State or County Scenic Highway. However, I-8, which crosses a portion of the southern area of the proposed Project site (Figure 2), is designated as Eligible for State Scenic Highway status (California Department of Transportation, 2010). With placement of wind turbine generators (WTGs) up to 430 feet tall in the proposed Project area, and considering the orientation of this Eligible State Scenic Highway that crosses the proposed Project area, there is potential for an adverse visual effect on the viewshed of this Eligible State Scenic Highway. Therefore, this potential impact will be further evaluated in the EIR.

(c) The proposed Project would potentially degrade the existing visual character or quality of the site and its surroundings. The proposed Project area currently supports native desert plant communities and a network of paved and dirt roads. Existing land uses at and in the immediate vicinity of the project site include open space desert lands, and paved and unpaved roads. Off-

road vehicle or off-highway vehicle activities occur in the project vicinity and evidence of recreational hunting and camping were observed during site reconnaissance. Overall, the undeveloped character of the area may be adversely affected by the proposed Project, and therefore the proposed Project's potential to substantially degrade the existing visual character or quality of the proposed Project site and its surroundings will be further evaluated in the EIR.

(d) The proposed Project would potentially create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. The FAA is expected to require nighttime lighting on some meteorological towers and on top of some of the WTGs, which could adversely affect nighttime views in and of the area. Further analysis of the specific lighting required and the effects of nighttime light are warranted. Therefore, this potential impact will be further evaluated in the EIR.

3.2 Agricultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
(b) Conflict with existing zoning for agricultural use or a Williamson Act Contract?	☐	☐	☐	☒
(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

(a) There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the proposed Project area. The proposed Project area is comprised mainly of land classified as "other land," according to the California Division of Land Resource Protection Farmland Mapping and Monitoring Program (California Department of Conservation, 2007).This category consists of land not included in any other mapping category. The land immediately adjacent to the proposed Project site is also classified as "other land". Therefore, construction and operation of the proposed Project would not convert designated farmland to a nonagricultural use. No impact would occur and no further analysis is warranted.

(b) The proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act Contract. The majority of the proposed Project site is located under the Bureau of Land Management's (BLM) California Desert Conservation Area (CDCA) Plan. Portions of the proposed Project site are designated as Open Space, Desert Residential, and Government/Special Public under Imperial County. None of the parcels are covered by Williamson Act contracts. Therefore, the proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act Contract. No impact would occur and no further analysis is warranted.

(c) The proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The majority of the proposed Project site is located under the BLM's CDCA Plan. Portions of the proposed Project site are designated as Open Space, Desert Residential, and Government/Special Public under Imperial County and not zoned as forest land or timberland for timber production. No impact would occur and no further analysis is warranted.

(d) The proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. The majority of the proposed Project site is located under the BLM's CDCA Plan and consists primarily of desert plant communities. Portions of the proposed Project site are designated as Open Space, Desert Residential, and Government/Special Public under Imperial County. Construction and operation of the proposed Project would not have any direct or indirect impacts on forest land. No impact would occur and no further analysis is warranted.

(e) The proposed Project would not involve other changes in the existing environment that would result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. Construction and operation of the proposed Project would not have any direct or indirect impacts on Farmland or forest land. No impact would occur and no further analysis is warranted.

3.3 Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
(a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
(b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
(c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
(d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
(e) Create objectionable odors affecting a substantial number of people?	☒	☐	☐	☐

(a) The proposed Project would potentially conflict with or obstruct implementation of the applicable air quality plans of the Imperial County Air Pollution Control District (ICAPCD). The proposed Project would be located entirely within the jurisdiction of the ICAPCD, in the Salton Sea Air Basin. The ICAPCD is a nonattainment area for the State and federal ozone and particulate matter (PM10) standards. Equipment and activities during construction of the proposed Project would result in emissions of PM10 and ozone precursors, including nitrogen oxides (NOx) and volatile organic compounds (VOC), which could result in significant impacts to air quality in the area. The sources of emissions include heavy equipment used to excavate and grade the turbine pads and roads, cranes, concrete batch plants, and on-road motor vehicles for equipment and material deliveries and workers commuting to the site. Activity on unpaved roads and lay-down areas and grading would contribute to PM10 violations. Further analysis of air quality impacts is warranted to determine whether the proposed Project would conflict with or obstruct implementation of the applicable plans for attainment and if so, to determine the reasonable and feasible mitigation measures that could be imposed. This impact is potentially significant and will be evaluated further in the EIR.

(b) The proposed Project would potentially violate air quality standards or contribute substantially to an existing or projected air quality violation. Short-term construction emissions and temporary facilities, including concrete batch plants, could significantly contribute to an existing or projected air quality violation of PM10 or ozone standards, requiring the consideration of mitigation measures. This impact is potentially significant and will be evaluated further in the EIR.

(c) The proposed Project would potentially result in a cumulatively considerable net increase of any criteria pollutant for which the proposed Project region is non-attainment under an applicable federal or state ambient air quality standard. The ICAPCD is a nonattainment area for the State

and federal ozone and PM10 standards, and the ICAPCD rules and regulations apply to all proposed Project activities. Cumulative contributions to this basin could be potentially significant. Construction and operational emissions for the proposed Project will be evaluated further in the EIR.

(d) The proposed Project would potentially expose sensitive receptors to substantial pollutant concentrations. The nearest sensitive receptors to the proposed Project site are homes and residences located immediately south of the northeastern portion of the proposed Project site in the unincorporated community of Ocotillo and east of the southeast portion of the proposed Project in the unincorporated community of Coyote Wells. The closest WTG would be constructed approximately 0.5 mile north of the residences. Construction-related activity and temporary facilities, including concrete batch plants, would result in diesel exhaust emissions and dust that could adversely affect air quality for the nearest sensitive receptors. Mitigation measures for diesel equipment and dust control will be evaluated as part of the EIR to avoid or reduce the impacts to construction workers and occupants of nearby residences. This impact is potentially significant, and will be evaluated further in the EIR.

(e) The proposed Project would potentially create objectionable odors affecting a substantial number of people. Aside from odors associated with vehicle exhaust and fueling, no other odors would result from construction or operation of the proposed Project. Since there are residences located in the immediate vicinity of the proposed Project site, fueling odors during proposed Project construction would potentially impact a substantial number of people. Therefore, the proposed Project would potentially result in significant impacts to air quality related to objectionable odors, and will be evaluated further in the EIR.

3.4 Biological Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES. Would the project:				
(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
(c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
BIOLOGICAL RESOURCES. Would the project:				
(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

(a) The proposed Project may have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS). Sensitive species that could be located in or adjacent to the proposed Project site include Peninsular Bighorn Sheep, flat-tailed horned lizard, barefoot banded gecko, and migratory birds and bats. Impacts to biological resources, including avian species, are potentially significant and will be analyzed in the EIR.

(b) The proposed Project may have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS. The proposed Project-related access roads and transmission lines may cross streams and washes that would require evaluation for riparian habitat and may also require Streambed Alteration permits from CDFG. The proposed Project's impact to sensitive plant communities will be further evaluated in the EIR.

(c) The proposed Project may have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act. Wind energy development typically occurs on ridges and other elevated land where wetlands and surface bodies are not likely to occur. However, access roads and transmission lines may cross lands where these features may be more common. The proposed Project's impacts on potential wetlands will therefore be evaluated in the EIR.

(d) The proposed Project may interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Impacts to wildlife could include habitat reduction, alteration, and fragmentation, introduction of invasive species, injury or mortality, decrease of water quality due to erosion and runoff, fugitive dust, noise, and exposure to contaminants, as well as interference with behavioral activities. The proposed Project site and surrounding area may be used for migration or dispersal by some avian species. Birds and bats would also likely be subject to mortality during wind turbine operation if they collide with the towers or turbine blades. Proposed Project construction and operation would also remove foraging habitat. This impact is potentially significant and will be evaluated in the EIR.

(e) The proposed Project may conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Inconsistency with the policies of the Imperial County Conservation and Open Space Element would be a significant impact. Therefore, proposed Project consistency with Imperial County's tree conservation polices will be evaluated in the EIR.

(f) The proposed Project may conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The proposed Project is located within the California Desert Conservation Area Plan and within the vicinity of the Jacumba Wilderness, Yuha Basin Area of Critical Environmental Concern, the Coyote Mountain Wilderness, and the Anza-Borrego Desert State Park. The proposed Project is not expected to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. However, this impact will be further evaluated in the EIR.

3.5 Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
CULTURAL RESOURCES. Would the project:				
(a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☒	☐	☐	☐
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☒	☐	☐	☐
(c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐
(d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

(a) The proposed Project could cause a substantial adverse change in the significance of a historical resource. A cultural resources survey is currently being conducted for the proposed Project site. Given the potential to encounter unknown resources during construction of the proposed Project, potential impacts to historical resources is considered significant and formulation of avoidance or mitigation measures will be further evaluated in the EIR.

(b) The proposed Project could cause a substantial adverse change in the significance of an archaeological resource. An archaeological survey of the proposed Project site is currently being conducted. Given the potential to encounter unknown resources during construction of the proposed Project, potential impacts to archeological resources is considered significant and formulation of avoidance or mitigation measures will be further evaluated in the EIR.

(c) The proposed Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. A paleontological records search within the proposed Project area is currently being conducted. Given the potential to encounter unknown resources during construction of the proposed Project, potential impacts to paleontological resources and proposed mitigation measures will be evaluated in the EIR.

(d) The proposed Project may potentially disturb human remains during construction. If human burial grounds are identified in any part of the proposed Project area, the proposed Project would likely be redesigned to avoid them. Since the potential for locating human remains is unknown, this impact is considered potentially significant. Potential impacts to human remains and proposed mitigation measures will be further evaluated in the EIR.

3.6 Geology Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
GEOLOGY AND SOILS. Would the project:				
(a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☒	☐	☐	☐
ii. Strong seismic groundshaking?	☒	☐	☐	☐
iii. Seismic-related ground failure, including liquefaction?	☒	☐	☐	☐
iv. Landslides?	☒	☐	☐	☐
(b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☒	☐	☐	☐
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☒	☐	☐	☐
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☒	☐	☐	☐

(a) (i) The proposed Project is not crossed by an Alquist-Priolo Special Study Zone. The proposed Project would be located approximately five miles west of the Yuha Wells Fault and the Laguna Salada Fault (Ocotillo Express, 2010). The Yuha Wells fault is a fairly recently mapped northeast-southwest trending fault which offsets the Laguna Salada fault from the main trace of the Elsinore fault. The proposed Project site would be less than one mile south of the Elsinore Fault zone. This portion of the Elsinore fault is located within an Alquist-Priolo zone. Although, the proposed Project site is not located within an Alquist-Priolo Special Study Zone, significant seismic activity in the area could adversely affect structures and workers on the proposed Project site. This issue will be further evaluated in the EIR.

(ii) Strong seismic ground shaking could occur at the proposed Project site, resulting in damage to structures that are not properly designed to withstand strong ground shaking. The proposed Project is located within the Imperial Valley, also known as the Salton Trough. According to Imperial County's Seismic/Safety Element, the Salton Trough is one of the most tectonically active regions in the United States. The eastern boundary is formed by branches of the San Andreas fault and the western boundary is formed by the San Jacinto-Coyote Creek and the Elsinore-Laguna Salada Faults. The proposed Project would potentially be subject to moderate to

strong ground shaking from local and regional earthquakes. This potential impact will be evaluated in the EIR.

(iii) The potential for substantial adverse effects due to seismic-related ground failure, including liquefaction, will be examined in the geotechnical report being prepared for the proposed project site and related potential impacts will be evaluated in the EIR.

(iv) According to Imperial County's Seismic/Safety Element, the proposed project site would be located in a low to moderate risk area for landslides. The potential for substantial adverse effects due to landslides will be evaluated in the EIR.

(b) The proposed Project would potentially result in substantial soil erosion or the loss of topsoil. Grading would be required for access roads throughout the proposed Project site. Grading and excavation would be required for foundations for each WTG tower. These activities could result in substantial soil erosion if the improved access roads and/or turbine sites are not properly designed. Careful design of access road gradients and WTG sites would prevent substantial erosion within the proposed Project area. Nevertheless, these impacts are potentially significant and the potential for increased erosion will be further evaluated in the EIR.

(c) The proposed Project would potentially be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the proposed Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The proposed Project would be designed such that it would not degrade the stability of the underlying soils. The geotechnical report will examine the current baseline stability of the soils that underlie the proposed Project area and the findings of that report will be evaluated in the EIR. While potential impacts are expected to be less than significant, they will be further evaluated in the EIR and mitigation measures will be presented, if necessary, to protect both structures and people from adverse effects due to landslide, lateral spreading, subsidence, liquefaction, or collapse.

(d) The proposed Project would potentially be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Expansive soils generally result from specific clay minerals that expand when saturated and shrink in volume when dry. The geotechnical report will confirm the presence or absence of expansive soils within the proposed Project area, and those results will be evaluated in the EIR.

(e) The proposed Project would potentially have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. The operation and maintenance facility associated with the proposed Project would likely include a restroom that would be connected to a septic tank. With adherence to existing regulatory requirements, potential impacts associated with the usage of soils incapable of supporting a private sewage disposal system are considered less than significant. Nevertheless, the ability of soils within the proposed Project area to support a septic tank will be examined in the geotechnical report, and the results of that report will be evaluated in the EIR.

3.7 Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
GREENHOUSE GAS EMISSIONS. Would the project:				
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

(a) The proposed Project is not expected to generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment. While it is difficult to determine whether the proposed Project individually would have a significant impact on global warming or climate change, the direct emissions from construction and operation of the proposed Project would constitute a small fraction of the statewide GHG emissions. Indirect GHG emissions caused by the proposed Project are expected to be reduced, by displacing high GHG emitting power plants. Nevertheless, following the completion of the air quality analysis of construction and operation emissions, potential impacts will be further evaluated in the EIR.

(b) The proposed Project is not expected to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The proposed Project would fulfill a portion of the renewables portfolio standard that is mandated for California and reflected in the California Air Resources Board Assembly Bill 32 Scoping Plan and the Governor's Executive Order S-14-08, partially satisfying the goals of the California Renewable Energy Programs. Nevertheless, following the completion of the air quality analysis of construction and operation emissions, potential impacts will be further evaluated in the EIR.

3.8 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
(d) Be located on a site which is included on a list of hazardous	☐	☐	☐	☒

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				
(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
(f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☒	☐	☐	☐
(g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☒	☐	☐	☐

(a) The proposed Project is not expected to result in impacts from hazards and hazardous materials with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed Project would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act. The only hazardous materials expected to be transported to and from the proposed Project site include transformer oil (which is used in electrical transformers for the turbines), vehicle fuel, carburetor fluid, and various types and grades of lubrication oil, all of which are expected to be used in small quantities and for daily maintenance. This impact is considered less than significant and no further analysis is warranted.

(b) The proposed Project would potentially create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Potential impacts that may result from construction and operation of the proposed Project may include the accidental release of storage materials such as transformer oil, which is used in electrical transformers for turbines, vehicle fuel, carburetor fluid, and various types and grades of lubricants, solvents, and oils. The toxicity and potential release of these materials will depend on the quantity, the type of storage container, safety protocols used on the proposed Project site, the location and/or proximity to residences, the frequency and duration of spills or storage leaks, and the reactivity of hazardous substances with other materials. Therefore, a complete list of all materials used on site, how the materials will be transported, and in what form they will be used should be recorded to maintain safety and prevent possible environmental contamination or worker exposure. If regulations and standard protocols are followed during the storage, transportation, and usage of any hazardous materials, no substantial impacts should occur. Nevertheless, these issues will be further evaluated in the EIR.

(c) The proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The proposed Project site is located in a predominantly rural area of Imperial County, and there are no schools located within one-quarter mile of the site. The closest school to the proposed Project site is Desert Mirage High School, located approximately seven miles northeast of the site. Additionally, the proposed project is a wind energy generation facility that involves using turbines to generate electricity. Project-related infrastructure would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste. Therefore, no impacts would occur and further analysis is not warranted.

(d) The proposed Project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Staff has reviewed the lists of projects relating to hazardous wastes pursuant to Section 65962.5 of the California Government Code and concluded the proposed Project site is not on the list. Therefore, no impacts would occur and further analysis is not warranted.

(e) The proposed Project would not be located within two miles of a public airport or public use airport that would result in a safety hazard for people residing or working in the proposed Project area. No public airports are located within two miles of the proposed Project site. The closest public airport to the proposed Project site is Jacumba Airport, located approximately 7.1 miles southwest of the site. Safety hazards for people residing or working in the proposed Project area with respect to the proposed Project's proximity to a public or public use airport are expected to be less than significant. No further analysis is warranted.

(f) The Emory Ranch is a private airport located approximately 0.2 mile south of the northeast portion of the proposed Project site and would potentially result in a safety hazard for people residing or working in the proposed Project area. Additionally, the U.S. Navy, Department of Defense Airspace Consultation Area would be located immediately north of the proposed Project site. Wind turbines located on the northern portion of the proposed Project site would underlie a low-level military training route which has a lower altitude or "floor" of 200 feet above ground level. Therefore, wind turbines would encroach into the route and impact the military training conducted on it. Potential mitigation would require that all wind turbines within the area 1.5 nautical miles south of the centerline of the Department of Defense Airspace Consultation Area are less than 400 feet tall at the maximum blade tip height. Potential impacts to Emory Ranch and the Department of Defense Airspace Consultation Area will be further evaluated in the EIR.

(g) The proposed Project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. The proposed Project development will not physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the proposed Project site. The proposed Project site is located in a rural area with several alternative access roads allowing easy access to the site in the event of an emergency. Therefore, no impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan is anticipated. This impact is less than significant and no further analysis is warranted.

(h) The proposed Project may potentially expose people or structures to a significant risk of loss, injury, or death involving wildland fires. The proposed project site is under the jurisdiction of the Imperial Multi-Jurisdiction Hazard Mitigation Plan. This plan includes Public Resource Code 4290 Fire Safety Regulations. These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction and development in State Responsibility Areas (SRA). The future design and construction of structures, subdivisions and developments in SRAs shall provide for basic emergency access and

perimeter wildfire protection measures as specified in PRC 4290. The potential for wildfires in Imperial County is very low due to the desert and agriculture topography of the County (Imperial County, 2007a). Vegetation at the proposed project site consists primarily of desert habitats including Sonoran creosote bush scrub, Sonoran desert mixed scrub, Sonoran west scrub, and Sonoran mixed woody and succulent scrub. With the implementation of mitigation measures to reduce wildfire ignitions and prevent the spread of wildfires, the proposed Project would not be expected to result in significant impacts to the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. Although, the potential for construction and operation of the proposed Project to result in increased risk of wildfires in the proposed Project area is low, this potential impact will be further evaluated in the EIR.

3.9 Hydrology and Water Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY. Would the project:				
(a) Violate any water quality standards or waste discharge requirements?	☒	☐	☐	☐
(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on site or off site?	☒	☐	☐	☐
(d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☒	☐	☐	☐
(e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☒	☐	☐	☐
(f) Otherwise substantially degrade water quality?	☒	☐	☐	☐
(g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
(h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☒	☐	☐	☐
(i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☒	☐	☐	☐
(j) Inundation by seiche, tsunami, or mudflow?	☒	☐	☐	☐

a) The proposed Project may potentially violate water quality standards or waste discharge requirements. It is anticipated that appropriate best management practices and compliance with

applicable regulations would reduce potential water quality impacts to a less than significant level. However, this potential impact is considered significant and will be further evaluated in the EIR.

(b) The proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. The proposed Project is located within the Coyote Wells Valley Groundwater Basin. The amount of new impervious surface created under the proposed Project would be small and distributed (such as footings for turbines), and would not be expected to have a measurable effect on groundwater recharge. Also, it is not anticipated that any new wells would be required for construction of the proposed Project. Any water that is needed for construction (such as water for dust suppression) would be transported in by truck. A minimal water supply would be required during proposed Project operation to service 28 to 30 permanent technicians, and would be transported in from the Imperial Valley Irrigation District.

The demand for water during construction would be short-term and would not be great enough to necessitate creation of a new well or any other use of groundwater resources. Additionally, a small water supply would be transported in for proposed Project operation. Therefore, the proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Therefore, impacts are considered less than significant and no further analysis is warranted.

(c) The proposed Project may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on site or off site. Grading would be required for access roads throughout the proposed Project site. Leveling and excavation would be required for each turbine installation site. These activities could result in changes to the drainage across the proposed Project site if the improved access roads and/or turbine sites are not properly designed. Careful design of access road gradients and turbine sites would prevent substantial alteration of drainage patterns and/or erosion within the proposed Project area. Nevertheless, these impacts are considered potentially significant. Evaluation of impacts to the drainage patterns of the site, as well as the potential for increased erosion and/or sedimentation, will be further evaluated in the EIR.

(d) The proposed Project may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Proposed Project structures would not be placed in active channels and therefore would not alter stream flow. As stated above, grading would be required for access roads throughout the proposed Project site, and leveling would be required for each turbine installation site. These activities could result in changes to the drainage across the proposed Project site if the improved access roads and/or turbine sites are not properly designed.

The rate and amount of surface runoff is determined by multiple factors, including the following: topography; amount and intensity of precipitation; amount of evaporation that occurs in the watershed; and amount of precipitation and imported water that infiltrates to groundwater. The proposed Project would not alter any precipitation amounts or intensities, nor would it require significant amounts of additional water to be imported into the proposed Project area. Although grading would occur at turbine locations, crane pads, and access roads, this ground disturbance would be spread over a large geographic area and would not alter the overall topography of the proposed Project area. Impervious surfaces that would result from construction of the proposed

Project would be limited to turbine footings and pads for maintenance building and substation equipment. Footings would cover very small areas and would be distributed over a large geographic region, and therefore would not substantially interfere with groundwater infiltration. The proposed Project would not alter precipitation amounts or intensities, evaporation rates, or the amount of precipitation that infiltrates into the groundwater. Additionally, the amount of imported water used for construction of the proposed Project (such as water used for dust suppression) would not substantially alter groundwater infiltration rates. Therefore, the rate or amount of surface runoff resulting from the proposed Project would not change relative to existing conditions.

Although the amount of surface runoff within the proposed Project area would not change, the pattern and concentration of this runoff could be altered by grading activities associated with the proposed Project. Improper design of access roads and turbine sites could result in an alteration of drainage patterns that would cause flooding on or off site. Therefore, the potential for flooding resulting from an alteration of drainage patterns is considered significant and will be further evaluated in the EIR.

(e) The proposed Project may create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Although the proposed Project would create a small amount of additional impervious surface and would require imported water for dust suppression during construction, these changes would not substantially increase the amount of stormwater runoff. The proposed Project area is drained by natural stream channels and does not rely on constructed stormwater drainage systems. As stated above, the pattern and concentration of runoff could be altered by proposed Project activities, such as grading of access roads; however, the amount of runoff across the proposed Project site would not be substantially altered. Therefore, the proposed Project is not expected to overwhelm stormwater drainage systems nor would it create substantial additional sources of polluted runoff. Nevertheless further analysis is required to determine the need for appropriate stormwater mitigation/design measures. This impact will be further evaluated in the EIR.

(f) Proposed Project construction activities (such as grading of access roads) could potentially degrade water quality through erosion and subsequent sedimentation of streams. Additionally, accidental release of potentially harmful materials, such as engine oil, diesel fuel, turbine lubricant, and cement slurry could degrade the water quality of nearby streams. Implementation of best management practices would likely reduce the impact of proposed Project activities on surrounding water quality. However, this potential impact is considered significant and will be further evaluated in the EIR.

(g) The proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. The proposed Project does not include housing. Therefore no impact would occur and no further analysis is warranted.

(h) The proposed Project would place structures within a 100-year flood hazard area which would potentially impede or redirect flood flows. Portions of the proposed Project area are located within a Flood Hazard Area, according to the Imperial County Seismic/Public Safety Element. The community of Ocotillo is at risk due to its location at the base of an alluvial fan originating at the base of Myer Creek (Imperial County, 2007b).The placement of structures within a 100-year flood hazard zone is a potentially significant impact. The potential for project structures to redirect or impede flood flows will be further evaluated in the EIR.

(i) The proposed Project would potentially expose people or structures to a significant risk of loss,

injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. The proposed Project is located within a Flood Hazard Area, according to the Imperial County Seismic/Public Safety Element. Although the proposed Project is not located within the immediate vicinity of any dams, the failure of Imperial Dam, Laguna Dam, Senator Wash Dam, or the Parker Dam would certainly cause inundation of the down stream shorelines, all of the Bard -Winterhaven area, and possibly would flush large quantities of water through Mexico into the New and Alamo Rivers (Imperial County, 2007b). The community of Ocotillo is at risk due to its location at the base of an alluvial fan originating at the base of Myer Creek (Imperial County, 2007b).Therefore, the proposed Project site may potentially be subject to flooding due to failure of a levee or dam. The proposed Project could expose people or structures to a significant risk of loss, injury, or death due to flooding. This impact is considered significant and will be further evaluated in the EIR.

(j) The proposed Project is located approximately 26 miles south-southwest of the Salton Sea, and could potentially be subject to inundation by seiche or tsunami. A seiche could occur, in the Salton Sea under the appropriate seismic conditions. The Salton Sea is proximal to the San Andreas and San Jacinto faults and would be subject to significant seismic ground shaking that could generate a seiche. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location. The potential for proposed Project structures to be inundated by a seiche, tsunami, or mudflow will be further evaluated in the EIR.

3.10 Land Use and Planning

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND USE AND PLANNING. Would the project:				
(a) Physically divide an established community?	☐	☐	☐	☒
(b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐
(c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☒	☐	☐	☐

(a) The proposed Project would not physically divide an established community. The majority of the proposed Project site is located under the BLM's CDCA Plan. Portions of the proposed Project site are designated as Open Space, Desert Residential, and Government/Special Public under Imperial County. Existing dwellings would be located within in the vicinity, but not on or immediately adjacent to the proposed Project site. As a result, the proposed Project would not physically divide any established communities. No impacts would occur and no further analysis is warranted.

(b) The proposed Project may conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed Project. The existing Imperial County zoning that

covers the proposed Project site include the following: Open Space, Desert Residential, and Government/Special Public (may conflict with wind energy development). The majority of the proposed Project site is located under the BLM's CDCA Plan. The appropriateness of the proposed Project with regard to its consistency with the policies of the Imperial County General Plan and BLM's CDCA Plan adopted for the purpose of avoiding or mitigating an environmental effect will be evaluated in the EIR.

(c) The proposed Project may conflict with an applicable habitat conservation plan or natural community conservation plan. The proposed Project site would be located within the boundaries of the BLM's CDCA Plan and Imperial County's Ocotillo Nomirage Community Area Plan. There are no other habitat conservation plans or natural community conservation plans that apply to the area. Analysis of the referenced plans and the possible need for mitigation will be addressed in the EIR.

3.11 Mineral Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
MINERAL RESOURCES. Would the project:				
(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☒	☐		☐
(b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☒	☐		☐

(a) The proposed Project may result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Mining activity is prevalent in the Imperial Valley and in the proposed Project vicinity. Approximately one to ten active mineral claims have been made at the proposed Project site (Ocotillo Express, 2010). Due to the proposed Project's proximity to known mineral resources and historical mining areas, it may have a significant impact on future mineral development; therefore, this issue will be further evaluated in the EIR.

(b) The proposed Project may result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Mining activity is prevalent in the Imperial Valley and in the proposed Project vicinity. Approximately one to ten active mineral claims have been made at the proposed Project site (Ocotillo Express, 2010). The evaluation of whether the installation of wind turbines might preclude future onsite mineral resource development and the proposed Project's impact to the availability of locally important mineral resources will be further evaluated in the EIR.

3.12 Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
NOISE. Would the project:				
(a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	☒	☐	☐	☐
(b) Exposure of persons to or generation of, excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☐
(e) For a project located within an airport land use plan, or where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐

(a) The proposed Project could potentially result in the exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance. According to the Imperial County Noise Element, sensitive receptors include, but are not limited to, residences, schools, hospitals, parks and office buildings. The nearest sensitive receptors to the proposed Project site are homes and residences located immediately south of the northeastern portion of the proposed Project site in the unincorporated community of Ocotillo and east of the southeast portion of the proposed Project in the unincorporated community of Coyote Wells. The closest WTG would be constructed approximately 0.5 mile north of the residences. A noise analysis will be included in the EIR to determine the proposed Project's consistency with the applicable provisions of the Imperial County General Plan and Noise Element.

(b) The proposed Project could potentially cause the exposure of persons to or generation of, excessive groundborne vibration or groundborne noise levels. Ground-borne vibration and ground-borne noise could originate from earth movement during the construction phase of the proposed Project as well as from the operation and maintenance of the WTGs. The proposed Project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive ground-borne vibration and noise to ensure that the proposed Project would not expose persons or structures to excessive ground-borne vibration. Further analysis of ground-borne vibration and ground-borne noise will be evaluated in the EIR.

(c) The proposed Project could lead to a substantial permanent increase in ambient noise levels in the proposed Project vicinity above levels existing without the proposed Project. The proposed Project would introduce permanent noise sources from turbine operation, increased traffic, and general maintenance. Construction activity would also increase ambient noise levels above existing levels for up to two years over two phases. Further analysis of ambient noise levels and the proposed Project's potential impact on those levels will be included in the EIR.

(d) The proposed Project could result in a substantial temporary or periodic increase in ambient noise levels in the proposed Project vicinity above levels existing without the proposed Project. Heavy equipment use during construction would cause a temporary or periodic increase in ambient noise levels. Temporary or periodic increases in ambient noise levels caused by construction activities could be reduced with the incorporation of mitigation measures. Proposed Project-related construction noise levels will be quantified and evaluated in the EIR.

(e) The proposed Project is not located within the Imperial County Airport Land Use Compatibility Plan. Therefore, no impacts would occur and no further analysis is warranted.

(f) The Emory Ranch is a private airport located approximately 0.2 mile south of the northeast portion of the proposed Project site. Implementation of the proposed Project may result in the exposure of people working in the proposed Project area to excessive noise levels from private aircrafts. This impact will be further evaluated in the EIR.

3.13 Population and Housing

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
POPULATION AND HOUSING. Would the project:				
(a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
(b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
(c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

(a) Construction and operation of the proposed Project would not induce substantial population growth in the proposed Project area. The proposed Project would require up to 300 workers during construction, which would be a minimal increase in employment over the proposed two year construction period given the proposed Project area's existing population of 166,874 (U.S. Census, 2010). Construction workers are expected to travel to the proposed Project site from various locations throughout southern California (including Imperial, San Diego, San Bernardino and Riverside counties), and the number of workers expected to relocate to the surrounding area is not expected to be substantial. If temporary housing should be necessary, it is expected that accommodations would be available within Imperial County. A total of 55,599 housing units were reported in 2008 for Imperial County, with a vacancy rate of 11 percent (California, Department of Finance, 2008).

Operation of the proposed Project would also require approximately 28 to 30 full-time technicians. However, given the scope of the existing population and available housing in the area, this increase is not considered significant. Consequently, the proposed Project is not expected to create a significant number of jobs or directly induce: a) substantial population growth; or b) the development of any new housing, businesses or new infrastructure during construction or operation.

The proposed Project would produce additional electricity, intended to meet the demand for energy that is already projected based on growth in communities around California. The production of additional electricity may be considered to indirectly be growth inducing, but the electricity generated would replace electricity generated by fossil fuels, thereby contributing to California's renewable energy goals. Therefore, this impact is considered less than significant and no further analysis is warranted.

(b) The proposed Project would not displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere. There are no residences located within the proposed Project boundaries. Consequently, implementation of the proposed Project would not necessitate the construction of replacement housing elsewhere. No impacts would occur and no further analysis is warranted.

(c) The proposed Project would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. The proposed Project would not remove existing housing or displace residents. Consequently, implementation of the proposed Project would not necessitate the construction of replacement housing elsewhere. No impacts would occur and no further analysis is warranted.

3.14 Public Services

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
PUBLIC SERVICES.				
(a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:				
Fire Protection?	☒	☐	☐	☐
Police Protection?	☒	☐	☐	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other Public Facilities?	☐	☐	☒	☐

(a) Fire suppression and emergency medical services would be provided by fire departments located in the cities of Imperial, El Centro and Calexico. The potential for wildfires in Imperial County is very low due to the desert and agriculture topography of the County (Imperial County, 2007a). Vegetation at the proposed project site consists primarily of desert habitats including Sonoran creosote bush scrub, Sonoran desert mixed scrub, Sonoran west scrub, and Sonoran mixed woody and succulent scrub. Construction and operation activities may result in increased risk of wildfire, which could impact fire fighting capacity in the area. The potential impact on

fire services from construction and operation of the proposed Project is therefore potentially significant and will be evaluated in the EIR.

Police protection services in the proposed Project area would be provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed Project may attract vandals or other security risks, and construction activities could result in increases in traffic volumes along I-8 and Highway 98 that could increase demand on law enforcement services. While onsite security would be provided and access would be limited to the areas surrounding the proposed Project site during construction and operation thereby minimizing the need for police surveillance, the proposed Project's impacts on sheriff services is potentially significant and will be evaluated in the EIR.

Up to 300 construction workers would be required to construct the proposed Project. However, it is expected that most of these workers would commute to the proposed Project site from surrounding communities. Therefore, substantial increases in population that would adversely affect local school populations are not expected. Likewise, the operation workforce (28 to 30 employees) is not expected to generate a population that would impact school populations. As a result, the proposed Project's impact on school services is considered less than significant and no further analysis is warranted.

It is expected that most of the 300 construction workers would commute to the proposed Project site from surrounding communities. Therefore, any population increase that would occur in the local area as a result of proposed Project construction would be minimal and is not anticipated to result in additional demand for park facilities. As a result, the proposed Project's impact on parks is considered less than significant and no further analysis is warranted.

The proposed Project is not expected to result in significant impacts to other public services, such as post office or library services. As discussed earlier, any population increase that would occur in the local area as a result of proposed Project construction and operation would be minimal. The proposed Project's impact on other public facilities is considered less than significant and no further analysis is warranted.

3.15 Recreation

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
RECREATION.				
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

(a) The proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. The temporary increase of population due to an influx of workers during construction would be minimal. As a result, there would not be a detectable increase in the use of parks. This impact is considered less than significant and no further analysis is warranted.

(b) The proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. No impact would occur and no further analysis is warranted.

3.16 Transportation and Traffic

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC - Would the project:				
(a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☒	☐	☐	☐
(b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
(c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☒	☐	☐	☐
(d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
(e) Result in inadequate emergency access?	☒	☐	☐	☐
(f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☒	☐	☐	☐

(a) The proposed Project may conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. During construction, regional access to the proposed Project site would be provided by I-8 or the Imperial Highway. Construction of the proposed Project is projected to take place approximately 24 months and would require up to 300 construction workers. In addition to vehicle trips generated by construction workers traveling to the site, construction of the proposed Project would add vehicle trips to the area roadway system through delivery of construction equipment and materials. Delivery of construction materials would require a number of oversize vehicle trips that may travel at slower speeds than existing traffic and, due to their size, may intrude into adjacent travel lanes. These oversize trips may decrease the existing level of service (LOS) on area freeways, roadways and intersections. Additionally, the total number of vehicle trips associated with all construction-related traffic (including construction workers) could temporarily increase daily traffic volumes traveling on local roadways and intersections. Furthermore, stringing activities required for transmission line infrastructure may require temporary lane closures that may result in temporary traffic delays on affected roadways. These potential

impacts on the local roadway system from construction related vehicle trips will be evaluated in the EIR.

Once constructed, 28 to 30 full-time staff, including wind turbine technicians, operations personnel, administrative personnel and managers, would be employed to operate and maintain the proposed Project. Traffic from proposed Project operation is not expected to be a significant impact. Nevertheless, the potential impact of proposed Project operational traffic on the area roadway system will be evaluated in the EIR.

(b) The proposed Project may potentially conflict with an applicable congestion management program. (i) Construction and operation of the proposed Project would result in increased vehicle trips on roadways in the proposed Project area; however, construction workers are expected to travel to the site from various locations throughout southern California and would not be expected to result in a substantial number of trips on roadways in Imperial County. Additionally, deliveries of construction-related material and equipment would also travel to the proposed Project site via regional roadways and would not be expected to result in a substantial number of trips on roadways in Imperial County. The 28 to 30 employees required for operation of the proposed Project are expected to originate from the local area and would not result in a substantial number of trips on roadways in Imperial County. Given the foregoing information, the proposed Project's impacts on the Imperial County traffic/ circulation system are considered less than significant.

(ii) As detailed in the response to Question 3.16(a), construction of the proposed Project would generate construction trips and may require roadway lane closures, which could temporarily increase the daily traffic volumes on local roadways and intersections. Operation of the proposed Project would also generate trips on local roadways. The potential impacts of these conditions on LOS of area roadways will be evaluated in the EIR.

(c) The proposed Project may result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. As described earlier, the Emory Ranch is a private airport located approximately 0.2 mile south of the northeast portion of the proposed Project site. Additionally, the U.S. Navy, Department of Defense Airspace Consultation Area would be located immediately north of the proposed Project site. Wind turbines located on the northern portion of the proposed Project site would underlie a low-level military training route which has a lower altitude or "floor" of 200 feet above ground level. Therefore, wind turbines would encroach into the route and impact the military training conducted on it. The proposed Project would not be located within two miles of a public airport or public use airport. This impact is considered significant and will be evaluated in the EIR.

(d) The proposed Project Substantially may potentially increase hazards due to a design feature or incompatible uses. A number of existing dirt roads within the proposed Project site would be graded, widened, and compacted to provide adequate construction and maintenance access to proposed Project facilities. Where required, new access roads would be constructed. All access roadways would be graded/constructed and limited to only the turbine row roads and any connecting road that the large cranes will need to be walked on to move from row to row. Because all site access roadways would be private and restricted to public use, all modifications to existing on-site access roads and any new access roads created are not expected to result in an increase to public transportation hazards due to design or incompatible use. However, because all proposed Project access roads would require Access Road Design and Encroachment Permits from Imperial County, the proposed Project's compliance with regulations pertaining to access road modifications and construction will be evaluated in the EIR.

The San Diego and Arizona Eastern Railway (SD&AE), owned by the San Diego Metropolitan Transit System, crosses the proposed Project site and this line connects with the Santa Fe Railway. While the railroad would not be used for any purpose by the Applicant, it would be necessary to obtain permits from SD&AE for crossing of the railroad as well as other agencies for roadway and power line crossings associated with proposed Project transmission line infrastructure. Potential impacts related to compliance with applicable regulations for railroad crossings will be evaluated in the EIR.

(e) The proposed Project may result in inadequate emergency access. As described in the response to Question 3.16(a), construction of the proposed Project would generate construction trips and potential roadway lane closures which could temporarily increase the daily traffic volumes on local roadways and intersections, thereby impeding emergency access. The potential for proposed Project-related traffic to result in inadequate emergency access will be evaluated in the EIR.

(f) The proposed Project may conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. As described in the response to Question 3.16(a), construction of the proposed Project would generate construction trips and potential roadway lane closures which could temporarily disrupt bicycle traffic on local roadways. However, due to the rural nature of the proposed Project site area, no bus stops or designated bicycle lanes exist on the roadways likely to be used during construction and operation. The EIR will further consider how the proposed Project's traffic impacts can be mitigated through ride-sharing and limiting mid-day trips offsite for lunch by providing food on site. Additionally, the EIR will discuss further how the proposed Project conforms to the policies of the Imperial County Circulation and Scenic Highways Element supporting alternative transportation.

3.17 Utilities and Service Systems

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS. Would the project:				
(a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☒	☐	☐	☐
(b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
(c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☒	☐	☐	☐
(d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☐	☐
(e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS. Would the project:				
(f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
(g) Comply with federal, state, and local statutes and regulations related to solid waste?	☒	☐	☐	☐

(a) The proposed Project is not expected to exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. The proposed Project would generate a minimal volume of wastewater. During construction, wastewater would be contained within portable toilet facilities and disposed of at an approved site. During operation, the proposed project would not generate substantial volumes of wastewater as there would only be 28 to 30 full-time employees. Furthermore, the proposed Project is expected to include installation of a septic system with leach line to be developed at the O&M building. Site specific details involving on-site sewage disposal will be further evaluated in the EIR.

(b) The proposed Project may require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. The proposed Project would require the construction of a septic system and leach line. Wastewater generation during operation is not expected to be significant as the proposed Project would require only 28 to 30 full-time employees. Water for the O&M Building would be trucked in from the Imperial Valley Irrigation District. Water that is needed for construction, such as for dust suppression and concrete mixing, would also be trucked in. Since the proposed Project would provide its own water source during construction, it would not impact existing water supply systems. However, the proposed Project would still require construction of the facilities listed above. While all applicable local, state and federal requirements and best management practices would be incorporated into construction of the proposed Project, the construction of new wastewater treatment facilities could result in impacts to the environment and will therefore, be evaluated in the EIR.

(c) The proposed Project may require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Although the proposed Project would create a small amount of additional impervious surface and may require a small amount of imported water for dust suppression during construction, these changes would not substantially increase the amount of stormwater runoff. The proposed Project area is drained by natural stream channels and does not rely on constructed stormwater drainage systems. As stated above, the pattern and concentration of runoff could be altered by proposed Project activities, such as grading of access roads; however, the amount of runoff across the proposed Project site would not be substantially altered. Therefore, the proposed Project is not expected to overwhelm existing stormwater drainage systems nor create substantial additional sources of polluted runoff. Nevertheless further analysis is required to determine the need for appropriate stormwater mitigation/design measures. This impact will be further evaluated in the EIR.

(d) During operation, the proposed Project is expected to have minimal water needs, but the sufficiency of available water supplies to serve the proposed Project from existing entitlements and resources will need to be examined. Water for the O&M Building will likely be trucked in

from the Imperial Valley Irrigation District. Water that is needed for construction, such as for dust suppression and concrete mixing, would also be trucked in. Since the proposed Project would provide its own water source for construction, it would not impact existing water supply systems. However, this issue will be further evaluated in the EIR.

(e) The proposed Project would result in a determination by the wastewater treatment provider which serves or may serve the proposed Project that it has adequate capacity to serve the proposed Project's projected demand in addition to the provider's existing commitments. The proposed Project would require construction of a septic system with leach line. Consequently there is no wastewater treatment provider and no impacts to existing wastewater treatment facilities. No impact would occur and no further analysis is warranted.

(f) The proposed Project is not expected to generate a significant amount of waste that would exceed the capacity of local landfills. Materials brought to the proposed Project site would be used to construct facilities and few residual materials are expected. Non-hazardous construction refuse and solid waste would be disposed of at a local landfill, while hazardous waste generated during proposed Project construction would be disposed of at an approved location. It is not anticipated that the amount of solid waste generated by the proposed Project site would exceed the capacity of local landfills needed to accommodate the waste. Impacts would be less than significant and no further analysis is warranted.

(g) The proposed Project would comply with federal, state, and local statutes and regulations related to solid waste. The proposed Project would generate solid waste during construction and operation of the proposed Project, thus requiring the consideration of waste reduction and recycling measures. The California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed Project design. The need for mitigation measures to confirm that the proposed Project will comply with the 1991 California Solid Waste Reuse and Recycling Access Act of 1991, as amended will be evaluated in the EIR.

3.18 Mandatory Findings of Significance

MANDATORY FINDINGS OF SIGNIFICANCE		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
(b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
(c)	Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

(a) The EIR's biological resources section will discuss specific proposed Project impacts on plants and wildlife including avian species. The document will also evaluate the proposed Project's

contribution to cumulative biological resources impacts and propose mitigation measures to reduce the impacts, particularly on avian species, to less than significant.

(b) The proposed Project has the potential to contribute to cumulative impacts to aesthetics, biological resources, land use and planning, noise, and transportation and traffic. The EIR will evaluate the proposed Project's contribution to cumulative impacts in these and other areas as further impacts are identified.

(c) Although there may be significant air quality impacts during proposed Project construction, the long term air quality impacts could be beneficial if fossil fuel use is reduced. However, the health impacts from the short term cumulative contribution to air quality impacts will be evaluated in the EIR.

3.18 References

California Department of Conservation. 2007. Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Important Farmland Maps. Imperial County. 2007.

California Department of Finance. 2008. State of California, Department of Finance – E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark.

California Department of Transportation. 2010. California Scenic Highway Mapping System. Online at http://www.dot.ca.gov/hq/LandArch/scenic_highways/. Accessed on June 16.

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Ocotillo Express. 2010. Ocotillo Express Wind Facility, Draft Plan of Development. April 2010.

U.S. Census, 2010. State & County Quick Facts. Imperial County, California. Online at http://quickfacts.census.gov/qfd/states/06/06025.html. Accessed on June 16.

Appendix K

General Plan Policy Consistency Analysis

Appendix K

General Plan Policy Consistency Analysis

Appendix K

General Plan Policy Consistency Analysis for the Ocotillo Wind Energy Facility

Consistent with CEQA Guidelines Section 15125(d), the EIS/EIR must discuss any inconsistencies between a proposed project and applicable general plans and regional plans. Each environmental resource section identifies and analyzes applicable laws, ordinances, regulations, and standards in Chapter 3 (Affected Environment) of the EIS/EIR. The following discussion specifically addresses proposed Ocotillo Wind Energy Facility's (OWEF) consistency with the Imperial County General Plan (Section 1) and the Imperial County Ocotillo/Nomirage Community Area Plan (Section 2). Discussions of consistency with applicable regional plans are discussed in each resource section in Chapter 3 (Environmental Consequences).

Goals, objectives, and policies not considered relevant to the proposed OWEF are not discussed here, as CEQA Guidelines Section 15125(d) only requires discussion of applicable aspects of general plans.

Please note that the Imperial County General Plan is not applicable to lands administered by the Bureau of Land Management (BLM). The provisions of the General Plan are only enforceable to those portions of the proposed OWEF located in unincorporated territory outside of BLM jurisdiction.

1. IMPERIAL COUNTY GENERAL PLAN

Agricultural Element – Not Applicable. There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the OWEF area. The OWEF area is comprised mainly of land classified as "other land," according to the California Division of Land Resource Protection Farmland Mapping and Monitoring Program (California Department of Conservation, 2007). This category consists of land not included in any other mapping category. The land immediately adjacent to the OWEF site is also classified as "other land".

2008-2014 Housing Element – Not Applicable. This element provides Imperial County's goals, policies and programs relative to the development, improvement, and maintenance of housing within the unincorporated areas of the County, during the planning period of 2008-2014. The proposed OWEF does not involve the construction or removal of housing and does not hinder development, improvement, or maintenance of any housing.

Circulation and Scenic Highways Element	Consistent	Explanation
Safe, Convenient, and Efficient Transportation System *Goal 1: The County will provide and require an integrated transportation system for the safe and efficient movement of people and goods within and through the County of Imperial with minimum disruption to the environment.*		
Objective 1.2: Require a traffic analysis for any new development which may have a significant impact on County roads.	Yes	The *Traffic Impact Analysis for the Ocotillo Express Wind Energy Facility, County of Imperial, California*, March 17, 2011, prepared by Linscott, Law, & Greenspan, Engineers (LL&G Engineers) is included as Appendix J of the EIS/EIR.
Objective 1.11: Improve County circulation system roadways in concert with land development to ensure sufficient levels of service.	Yes	As discussed in Section 4.16, Transportation and Public Access (Impacts Trans-1 and Trans-2), OWEF construction and operation traffic would not result in any insufficient LOS on County intersections or roadways.
Objective 1.12: Review new development proposals to ensure that the proposed development provides adequate parking and would not increase traffic on existing roadways and intersection to a level of service (LOS) worse than "C" without providing appropriate mitigations to existing infrastructure. This can include fair share contributions on the part of developers to mitigate traffic impacts caused by such proposed developments.	Yes	As discussed in Section 4.16, Transportation and Public Access (Impact Trans-6), adequate on-site parking would be provided for construction equipment and employees. As discussed in Section 4.16, Transportation and Public Access (Impacts Trans-1 and Trans-2), OWEF construction and operational-related traffic would not result in any County intersections or roadways to operate at LOS C or worse.
Objective 1.17: Assure that road systems are adequate to accommodate emergency situations and evacuation plans.	Yes	As discussed in Section 4.16, Transportation and Public Access (Impact Trans-5), with implementation of Mitigation Measure Trans-1, adequate emergency access would be maintained.
Multiple Modes of Transportation *Goal 2: Consider all modes of transportation including motor vehicle, rail, transit, air transportation, and non-motorized transportation.*		
Objective 2.4: Reduce aviation-related hazards, including hazards to aircraft and hazards posed by aircraft.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-1), Mitigation Measure PHS-1 would ensure compliance with FAA regulations and DOD guidance on aviation-related hazards.
Alternate Modes of Transport *Goal 3: Develop alternative transportation strategies designed to reduce traffic volumes and improve traffic flow. This includes providing alternatives to residents such as pedestrian, bicycle and public transit options.*		
Objective 3.5: Support ridesharing services and other similar alternative modes of transportation.	Yes	While the OWEF does not include any features to encourage or assume any ridesharing activities would occur (per the analysis provided in Section 4.16), the OWEF would not hinder or deter these activities from occurring.
Objective 3.7: Ensure the safety of the traveling public, including pedestrians and bicyclists.	Yes	As discussed in Section 4.16, Transportation and Public Access (Impact Trans-4), Mitigation Measure Trans-1 would ensure public safety on public roadways.
Objective 3.8: Attempt to reduce motor vehicle air pollution. Require all major projects to perform an air quality analysis to determine the	Yes	As discussed in Section 4.2, Air Resources (Impact AR-2), the implementation of Mitigation Measure Air-2 would ensure emissions control from con-

Circulation and Scenic Highways Element	Consistent	Explanation
amount of pollution, as well as the alternative reduction options.		struction equipment.
Objective 3.10: Encourage the incorporation of bicycle facilities, such as bike lockers and showers at workplaces, and bicycle racks on buses, to better facilitate bicycle travel.	Yes	While the OWEF does not include any bicycle storage features or encourage bicycle/bus commuting (per the analysis provided in Section 4.16), the OWEF would not hinder or deter these activities from occurring.
Scenic Highways *Goal 4: The County shall make every effort to develop a circulation system that highlights and preserves the environmental and scenic amenities of the area.*		
Objective 4.3: Protect areas of outstanding scenic beauty along any scenic highways and protect the aesthetics of those areas.	Yes	As discussed in Section 4.18, Visual Resources (Impact Vis-2), the OWEF would not substantially damage scenic resources along the portion of I-8 west of the eastbound-westbound split listed as an eligible State Scenic Highway.
<u>g. Street Access Guidelines</u> The County shall institute street access guidelines consistent with the street classifications. These shall be applied where feasible to all new developments. The following guidelines shall be used to define appropriate access: • The County shall prohibit driveway access to Prime Arterials, unless there is no other reasonable means of access. • Access to Minor Arterials shall not be permitted unless there is no other reasonable means of access to the public street system. Where access to Minor Arterial or Collectors must be allowed, it shall be limited through the use of medians and/or access controls in order to maintain street capacity. • Along Minor Arterials, access spacing shall be a standard distance of 1,200 feet or more. Under special circumstances, this distance may be reduced to a minimum of 600 feet. Along Collectors the corresponding access spacing shall be 600 feet for the standard distance and 300 feet for the minimum distance. The above measurements shall be from the ends of the curb returns. • All access spacing requirements shall consider the above guidelines. Should more stringent requirements be imposed by the County Road Commissioner, his decision shall be final. • No driveway access will be allowed to some roads such as Expressways and Major Collectors.	Yes	If approved, issuance of a building permit for the OWEF would ensure County review and approval of site access road designs, including connections to public roadways. These requirements are not applicable on the portions of the project located on BLM-administered lands.

Conservation and Open Space Element	Consistent	Explanation
Conservation of Environmental Resources for Future Generations *Goal 1: Environmental resources shall be conserved for future generations by minimizing environmental impacts in all land use decisions.*		
Objective 1.2: Encourage only those uses and activities that are compatible with the fragile desert, aquatic, and marshland environment.	Yes	When considering approval of the OWEF, decision makers from Imperial County and BLM will consider impacts identified in the EIS/EIR and the public record. This process will weigh the significant and unavoidable impacts of the project against the project benefits.
Objective 1.3: Coordinate the acquisition, designation, and management of important natural resource areas in Imperial County with other appropriate governmental agencies as necessary.	Yes	The EIS/EIR included coordination with and consideration of a number of appropriate governmental agencies plans and policies regarding resource management.
Objective 1.5: Provide for the most beneficial use of land based upon recognition of natural constraints.	Yes	When considering approval of the OWEF, decision makers from Imperial County and BLM will consider impacts identified in the EIS/EIR and the public record. This process will weigh the significant and unavoidable impacts of the project against the project benefits.
Objective 1.6: Ensure the conservation, development and utilization of the County's natural resources.	Yes	When considering approval of the OWEF, decision makers from Imperial County and BLM will consider impacts identified in the EIS/EIR and the public record. This process will weigh the significant and unavoidable impacts of the project against the project benefits.
Objective 1.7: Provide the opportunity for enjoyment of a quality natural experience to present and future generations.	Yes	When considering approval of the OWEF, decision makers from Imperial County and BLM will consider impacts identified in the EIS/EIR and the public record. This process will weigh the significant and unavoidable impacts of the project against the project benefits.
Objective 1.8: Encourage the acquisition of scientific knowledge by encouraging the preservation of important ecological, archaeological, and other scientific sites.	Yes	As discussed in Sections 4.4, Cultural Resources, and 4.10, Paleontological Resources, the incorporation of Mitigation Measures CUL-1 through CUL-7 would ensure the OWEF protects and preserves any encountered historical or cultural resources.
Preservation of Biological Resources *Goal 2: The County will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats, and plant and animal species.*		
Objective 2.1: Conserve wetlands, fresh water marshes, and riparian vegetation.	Yes	The project site plan has been designed to minimize effects on Waters of the U.S., including not placing any permanent improvements in these jurisdictional areas. No wetland or freshwater marshes would be affected by the project.
Objective 2.2: Protect significant fish, wildlife, plant species, and their habitats.	Yes	As discussed in Sections 4.17, Vegetation Resources, and 4.20, Wildlife Resources, the OWEF would result in impacts to wildlife and vegetation species and habitat. However, the project has

Conservation and Open Space Element	Consistent	Explanation
		been designed to avoid areas inhabited by sensitive species and thereby minimize these effects.
Objective 2.3: Protect unique, rare, and endangered plants and animals and their habitats.	Yes	As discussed in Sections 4.17, Vegetation Resources, and 4.20, Wildlife Resources, the OWEF would result in impacts to candidate, sensitive, or special status wildlife and vegetation species and habitat. However, the project has been designed to avoid areas inhabited by sensitive species and feasible mitigation is proposed to minimize these impacts.
Objective 2.4: Use the environmental impact report process to identify, conserve and enhance unique vegetation and wildlife resources.	Yes	Vegetation and wildlife resources are discussed in Sections 3.18 and 4.17 (Vegetation Resources) and Sections 3.23 and 4.20 (Wildlife Resources) of the EIS/EIR.
Objective 2.6: Attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.	Yes	Section 4.2, Air Resources, discusses the air quality emissions of the OWEF and all measures to reduce such.
Preservation of Cultural Resources *Goal 3: Important prehistoric and historic resources shall be preserved to advance scientific knowledge and maintain the traditional historic element of the Imperial Valley landscape.*		
Objective 3.1: Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance.	Yes	As discussed in Sections 4.4, Cultural Resources, and 4.10, Paleontological Resources, the incorporation of Mitigation Measures CUL-1 through CUL-7 would ensure the OWEF protects and preserves any encountered historical or cultural resources.
Preservation of Mineral Resources *Goal 5: The County will identify and protect mineral resources for extraction and minimize the effect of mining on surrounding land uses and other environmental resources.*		
Objective 5.4: Safeguard the use and full development of all mineral deposits.	Yes	As discussed in Section 4.7, Mineral Resources (Impact MR-1), the OWEF would not result in impacts associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.
Objective 5.5: Regulate the development adjacent to or near all mineral deposits and geothermal operations due to the potential for land subsidence.	Yes	As discussed in Section 4.7, Mineral Resources, no mineral deposits or geothermal operations are located in proximity to any OWEF component.
Preservation of Visual Resources *Goal 7: The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.*		
Objective 7.1: Encourage the preservation and enhancement of the natural beauty of the desert and mountain landscape.	No	As discussed in Section 4.18, Visual Resources, the OWEF would introduce prominent man-made structures into the desert landscape. Please note that only one wind turbine would be located in the area under the jurisdiction of Imperial County.

Conservation and Open Space Element	Consistent	Explanation
Preservation of Water Resources *Goals 8: The County will conserve, protect, and enhance the water resources in the planning area.*		
Objective 8.1: Protect all bodies of water, e.g. Salton Sea, and water courses for their continued use and development.	Yes	As discussed in Section 4.19, Water Resources, the OWEF would have no impact to bodies of water.
Objective 8.4: Ensure the use and protection of the rivers and other waterways in the County. Ensure proper drainage and provide accommodation for storm runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage.	Yes	As discussed in Section 4.19, Water Resources, the OWEF does not include installation of new storm-water drainage systems, and would not affect existing stormwater drainage systems.
Objective 8.5: Protect and improve water quality and quantity for all water bodies in Imperial County.	Yes	As discussed in Section 4.19, Water Resources, the OWEF would have no impact to bodies of water.
Objective 8.10: Discourage the use of hazardous materials in areas of the County where significant water pollution could pose hazards to humans or biological resources.	Yes	As discussed in Section 4.11, Public Health and Safety, the incorporation of Mitigation Measures PHS-4, PHS-5, PHS-7 and PHS-8 would ensure the OWEF would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
Objective 8.12: Protect aquifer recharge areas including specifying minimum parcel size.	Yes	As discussed in Section 4.19, Water Resources, the implementation of BMPs and Mitigation Measures Water-1 through Water-10 as part of the OWEF ensures groundwater supply and recharge would not be adversely affected.
Objective 8.13: Encourage water conservation and efficient water use among municipal and industrial water users, as well as reclamation and reuse of wastewater.	Yes	As discussed in Section 4.19, Water Resources (Impact WR-2), the incorporation of Mitigation Measure Water-7 would ensure the OWEF addresses potential drought conditions that could affect water availability, and ensure water supply reliability during construction.
Objective 8.14: Coordinate with the appropriate agencies for the availability of water to meet future domestic, industrial/ commercial and agricultural needs.	Yes	The Applicant has coordinated with water agencies regarding water use. Relatively little water is needed for long-term project operations. See EIS/EIR Section 4.19, Water Resources.
Protection of Air Quality *Goal 9: The County shall actively seek to improve and maintain the quality of air in the region.*		
Objective 9.1: Ensure that all facilities shall comply with current federal and state requirements for attainment of air quality objectives.	Yes	As discussed in Section 4.2, Air Resources, the OWEF would conform to all applicable air quality attainment plans.
Objective 9.2: Cooperate with all federal and state agencies in the effort to attain air quality objectives.	Yes	As discussed in Section 4.2, Air Resources, the OWEF would conform to all applicable air quality attainment plans.

Conservation and Open Space Element	Consistent	Explanation
Preservation of Open Space *Goal 10: Open space shall be maintained to protect the aesthetic character of the region, protect natural resources, provide recreational opportunities, and minimize hazards to human activity.*		
Objective 10.2: Recognize the regional significance of the development and conservation of recreational opportunities in Imperial County.	Yes	As discussed in Section 4.12, Recreation, the OWEF would have no adverse affect to recreational opportunities.
Objective 10.9: Conserve desert lands within the county's jurisdiction for wildlife protection, recreation, and aesthetic purposes.	No	As discussed in Sections 4.17, Vegetation Resources, and 4.23, Wildlife Resources, the OWEF would result in impacts to wildlife and vegetation species and habitat. As discussed in Section 4.18, Visual Resources, the OWEF would introduce prominent man-made structures into the desert landscape. Feasible mitigation is proposed to minimize these impacts. Please note that only one wind turbine would be located in the area under the jurisdiction of Imperial County.
Programs and Policies **1. Biological Resource Conservation** Policy Landscaping should be required in all developments to prevent erosion on graded sites and, if the area is contiguous with undisturbed wildlife habitat, the plan should include revegetation with native plant species. Programs ·Revegetation plans shall be submitted and approved by the Imperial County Planning Department and relevant resource agencies for the mitigation of sensitive habitat lost, and for disturbed areas created by roads or installation of facilities adjacent to native habitat. Such plans shall mitigate for the loss of sensitive habitat and habitat value based on a ratio consistent with accepted policy, as recommended by the State and federal resource agencies. These specifications shall include, at a minimum, the following: · Locations of ecologically appropriate planting areas. · Site preparation/remedial grading. · Amounts, sizes, and locations of appropriate overstory tree species to be planted. · Hydroseed/container stock planting mixes and locations for appropriate understory shrub species and groundcovers. · Timing of planting (for example, most plantings should be conducted during the rainy season). · Protective measures during and after plant installation, such as temporary chainlink fencing	Yes	If approved, issuance of a building permit for the OWEF would ensure County review and approval of landscape design.

Conservation and Open Space Element	Consistent	Explanation
to keep out construction equipment/personnel; caging to avoid potential herbivory (animal browsing); and permanent wood-rail fencing or signage to deter human intrusions. This would also reduce potential impacts caused by future active uses, or "edge effects", from adjacent residential areas. · Irrigation schedule which specifies timing, frequency, length, and method of watering to ensure successful plant establishment. For example, temporary irrigation through the use of drip emitters should be installed around each tree to encourage deep tap rooting. Irrigation may only be necessary for the first one or two years, but could be extended throughout the monitoring period as determined necessary by the consulting biologist. · The proposed habitat restoration sites shall be monitored for an appropriate period of time to ensure long-term plant survivorship. Monitoring shall be conducted by a qualified biologist proficient at horticultural and botanical sampling methods. The biological monitor shall be present at the time of plant installation to ensure correct implementation. The monitoring program shall clearly specify success criteria (e.g., percent vegetative cover for shrub species, percent canopy cover for tree species, etc.) to be evaluated by the biological monitor on a quarterly basis. Annual reports detailing the progress of the revegetation effort in attaining these goals shall be submitted to the Imperial County Planning Department and relevant resource agencies. · A maintenance program shall be implemented for the length of the monitoring period. Primary goals of the maintenance program shall include staking, weed control and replacement of planted material that is diseased or has died. If the proposed restoration sites are not meeting stated goals of the Plan, supplemental remedial measures, such as additional weed control or replacement plantings, shall be recommended during the monitoring and maintenance period. · When appropriate, a bond or other security shall be provided for all required revegetation plans, which would be released by the County only after: 1) the consulting biologist has concluded that all specified success criteria have been met; and, 2) the County and other relevant		

Conservation and Open Space Element	Consistent	Explanation
permitting agencies have approved the successful completion of the plan. · Clearing of shrubs, vines, and other native vegetation for purposes of fire control shall be coordinated with the local fire district, particularly in fire-prone areas. Where clearing is necessary, high-fuel plants shall be replaced with native, low-fuel plants. Where feasible or necessary for habitat protection, fire buffer clearing shall be done by hand so as to minimize disturbance to understory species. A list of important understory groundcover, shrubs, vines, ferns, and other vegetation shall be compiled by a qualified biologist, and included in all required landscape plans prior to final approval of individual projects.		
2. Cultural Resources Conservation <u>Policy</u> Identify and document significant historic and prehistoric resources, and provide for the preservation of representative and worthy examples; and recognize the value of historic and prehistoric resources, and assess current and proposed land uses for impacts upon these resources. <u>Programs</u> · The County will use the environmental impact report process to conserve cultural resources. Public awareness of cultural heritage will be stressed. All information and artifactual resources recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review. · Encourage the use of open space easements in the conservation of high value cultural resources. · Consider measures which would provide incentives to report archeological discoveries immediately to the Imperial Valley College - Baker Museum. · Coordinate with appropriate federal, state, and local agencies to provide adequate maps identifying cultural resource locations for use during development review. Newly discovered archeological resources shall be added to the "Sensitivity Map for Cultural Resources". · Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. The County shall study the	Yes	As discussed in Sections 4.4, Cultural Resources, and 4.10, Paleontological Resources, the incorporation of Mitigation Measures Mitigation Measures CUL-1 through CUL-7 would ensure the OWEF protects and preserves any encountered historical or cultural resources.

Conservation and Open Space Element	Consistent	Explanation
feasibility of implementing policies and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622-1/2.		

Geothermal/Alternative Energy and Transmission Element	Consistent	Explanation
Agricultural Lands and Biological Resources *Goal 2: The County will minimize all impacts to agricultural lands and biological resources that could potentially result from the development of geothermal/alternative resources.*		
Objective 2.1: Site and design production facilities to lessen impacts on agricultural land and biological resources.	Yes	As discussed in Sections 4.17, Vegetation Resources, and 4.23, Wildlife Resources, the implementation of Mitigation Measures Veg-1 through Veg-3 and Wild-1 ensures the OWEF would lessen and avoid impacts to agricultural and biological resources to the extent feasible.
Objective 2.5: Require the relocation or creation of new habitat as might be appropriate.	Yes	As discussed in Sections 4.17, Vegetation Resources, and 4.23, Wildlife Resources, the implementation of Mitigation Measures Veg-1 through Veg-3 and Wild-1 ensures the OWEF would lessen and avoid impacts to agricultural and biological resources to the extent feasible.
Efficient Water Use *Goal 3: Geothermal/alternative energy operations will be required to efficiently utilize water.*		
Objective 3.3: Encourage the efficient utilization of water in geothermal/alternative energy operations, and foster the use of non-irrigation water by these industries.	Yes	As discussed in Section 4.19, Water Resources, the OWEF would have minimal impact to potable water supply.
Objective 3.4: Encourage recognition of the importance of water to fish and wildlife resources and the recreational uses of Imperial County.	Yes	As discussed in Section 4.19, Water Resources, the OWEF would have no impact to bodies of water.
Land Subsidence Prevention *Goal 4: The County will actively minimize the potential for land subsidence to occur as a result of geothermal/alternative energy operations.*		
Objective 4.1: Require that all such operations be conducted so that subsidence or other surface impacts detrimental to existing land uses will not occur.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.

Noise Element	Consistent	Explanation
Noise Environment *Goal 1: Provide an acceptable noise environment for existing and future residents in Imperial County.*		
Objective 1.3: Control noise levels at the source where feasible.	Yes	As discussed in Section 4.9, Noise, the implementation of Mitigation Measures Noise-1 through Noise-5 ensures the OWEF would lessen and avoid noise impacts to the extent feasible.
Objective 1.5: Identify sensitive receptors with noise environments which are less than acceptable, and evaluate measures to improve the noise environment.	Yes	As discussed in Sections 3.9 and 4.9, Noise, sensitive receptors were identified within the study area and the implementation of Mitigation Measures Noise-1 through Noise-5 ensures the OWEF would lessen and avoid noise impacts to the extent feasible.
Programs and Policies 1. Acoustical Analysis of Proposed Projects The County shall require the analysis of proposed discretionary projects which may generate excessive noise or which may be impacted by existing excessive noise levels, including but not limited to the following: · An analysis shall be required for any project which would be located, all or in part, in a Noise Impact Zone as specified above. · An analysis shall be required for any project which has the potential to generate noise in excess of the Property Line Noise Limits stated in Table 9. · An analysis shall be required for any project which, although not located in a Noise Impact Zone, has the potential to result in a significant increase in noise levels to sensitive receptors in the community. An acoustical analysis and report shall be prepared by a person deemed qualified by the Director of Planning. The report shall describe the existing noise environment, the proposed project, the projected noise impact and, if required, the proposed mitigation to ensure conformance with applicable standards.	Yes	As discussed in Section 4.9, Noise, Appendix G provides an acoustical analysis of the OWEF.
2. Noise/Land Use Compatibility Where acoustical analysis of a proposed project is required, the County shall identify and evaluate potential noise/land use conflicts that could result from the implementation of the project. Projects which result in noise levels that exceed the "Normally Acceptable" criteria of the Noise/ Land Use Compatibility Guidelines, Table 7, shall include mitigation measures to eliminate or reduce to an acceptable level the adverse noise impacts.	Yes	As discussed in Section 4.9, Noise, noise generated by OWEF construction, operation, and decommissioning activities would not exceed County land use compatibility performance standards.

Noise Element	Consistent	Explanation
5. New Noise Generating Projects The County shall identify and evaluate projects which have the potential to generate noise in excess of the Property Line Noise Limits specified in Table 9. An acoustical analysis must be submitted which demonstrates the project's compliance with the Property Line Noise Limits, and/or required mitigation measures to reduce noise to acceptable levels. Mitigation may include a greater property line setback than required by the Zoning Ordinance, use of solid building walls without openings, noise attenuation walls and/or landscaped earth berms, alternative construction materials or design, alternative traffic patterns, or other noise reduction techniques.	Yes	As discussed in Section 4.9, Noise, noise generated by OWEF construction, operation, and decommissioning activities would not exceed County land use compatibility performance standards. The implementation of Mitigation Measures Noise-1 through Noise-5 ensures the OWEF would lessen and avoid noise impacts to the extent feasible.
6. Projects Which Generate Off-Site Traffic Noise The acoustical analysis shall identify and evaluate projects which will generate traffic and increase noise levels on off-site roadways. If the project has the potential to cause a significant noise impact to sensitive receptors along those roadways, the acoustical analysis report shall consider noise reduction measures to reduce the impact to a level less than significant, including reduction of the intensity of the proposed project, construction of noise attenuation walls and/or landscaped earth berms, or other changes in project design or its proposed access. For non-residential projects, reduced hours of operation may also be required.	Yes	As discussed in Section 4.9, Noise, noise generated by OWEF construction, operation, and decommissioning traffic would not exceed County land use compatibility performance standards.
8. Mitigation of Noise Impacts Where acoustical analysis indicates the potential for conflict with County noise standards or for significant noise impact, mitigation measures should be considered and incorporated into the project. Noise reduction measures may be applied at the source of the noise, along the path of the noise or at the receptor.	Yes	As discussed in Section 4.9, Noise, noise generated by OWEF construction, operation, and decommissioning activities would not exceed County land use compatibility performance standards. The implementation of Mitigation Measures Noise-1 through Noise-5 ensures the OWEF would lessen and avoid noise impacts to the extent feasible.

Seismic and Public Safety Element	Consistent	Explanation
Land Use Planning and Public Safety *Goal 1: Include public health and safety considerations in land use planning.*		
Objective 1.1: Ensure that data on geological hazards is incorporated into the land use review process, and future development process.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 1.2: Regulate development within flood-way areas in accordance with Federal Emergency Management Agency (FEMA).	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 1.4: Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 1.8: Reduce fire hazards by the design of new developments.	Yes	As discussed in Section 4.20, Wildland Fire Ecology (Impact Fire-1), the implementation of Mitigation Measures Fire-1, Fire-2, and Veg-1d, in addition to best management practices, would minimize the OWEF risk of wildfire ignition and minimize the introduction and spread of non-native plants such that the baseline level of wildfire frequency and severity is maintained.
Emergency Preparedness *Goal 2: Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.*		
Objective 2.1: Ensure the adequacy of existing emergency preparedness and evacuation plans to deal with identified hazards and potential emergencies.	Yes	As discussed in Section 4.11, Public Health and Safety, the implementation of Mitigation Measure PSH-11 ensures the OWEF would not interfere with evacuation plans or emergency preparedness.
Objective 2.3: Identify potential risk and damage due to inundation from dam failure and/or water releases.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 2.4: Support and assist in informing the public and other agencies of the hazards and risks of earthquakes and of techniques to employ to reduce those hazards.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 2.8: Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 2.9: Reduce vehicle accidents through appropriate standards.	Yes	As discussed in Section 4.16, Transportation and Public Access, the implementation of Mitigation Measure Trans-1 ensures vehicle safety associated with the OWEF.

Seismic and Public Safety Element	Consistent	Explanation
Objective 2.10: Reduce the risk of damage due to subsidence resulting from extraction of groundwater and geothermal resources by appropriate regulation.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Control Hazardous Materials *Goal 3: Protect the public from exposure to hazardous materials and wastes.*		
Objective 3.1: Discourage the transporting of hazardous materials/waste near or through residential areas and critical facilities.	Yes	As discussed in Section 4.11, Public Health and Safety, the implementation of Mitigation Measure PSH-5 ensures proper handling of hazardous materials shall occur with the OWEF.
Objective 3.2: Minimize the possibility of hazardous materials/waste spills.	Yes	As discussed in Section 4.11, Public Health and Safety, the implementation of Mitigation Measure PSH-5 ensures proper handling of hazardous materials shall occur with the OWEF.
Objective 3.3: Discourage incompatible development adjacent to sites and facilities for the production, storage, disposal, and transport of hazardous materials/waste as identified in the County General Plan and other regulations.	Yes	As discussed in Section 4.11, Public Health and Safety, the implementation of Mitigation Measure PSH-5 ensures proper consideration of hazardous material storage areas shall occur with the OWEF.
Programs and Policies **Flood Hazards** 5. Establish technical design criteria which minimizes or mitigates impacts associated with crossing of floodplains by development. Unless such engineering alternatives are implemented, development in floodplains is to be restricted or prohibited.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse impacts related to flooding.

Water Element	Consistent	Explanation
Coordinated Water Management *Goal 5: Water Resources shall be managed effectively and efficiently through interagency and inter-jurisdictional coordination and cooperation.*		
Objective 5.2: Aid in the protection and enhancement of limited water resources so as to provide for the indefinite use and maximum enjoyment.	Yes	As discussed in Section 4.19, Water Resources, the OWEF would have minimal impact to potable water supply and groundwater resources, and no impacts to bodies of water.
Programs and Policies 4. Protection of Water Resources from Hazardous Materials · All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity, and shall be required to implement appropriate mitigation measures for any significant impacts.	Yes	As discussed in Section 4.19, Water Resources, the OWEF would have minimal impact to potable water supply and no impacts to bodies of water.

Land Use Element	Consistent	Explanation
Goal 3: Achieve balanced economic and residential growth while preserving the unique natural, scenic, and agricultural resources of Imperial County.		
Objective 3.2 Preserve agriculture and natural resources while promoting diverse economic growth through sound land use planning.	Yes	As discussed in Section 4.6, Lands and Realty, the OWEF would contribute to economic growth in the County and preservation efforts would be implemented through the mitigation measures set forth in this EIS/EIR and with required BMPs.
Objective 3.6 Recognize and coordinate planning activities as applicable with the BLM, and the California Desert Conservation Plan.	Yes	As discussed in Section 4.6, Lands and Realty, the OWEF includes a ROW grant and CDCA Plan Amendment, and with approval of both actions, the project would be consistent with the CDCA Plan. Therefore, the County and the BLM have coordinated for the applicable planning activities.
Objective 3.8 Utilize non-agricultural land as a resource to diversify employment opportunities and facilitate regional economic growth. Uses must be consistent with each site's resource constraints, the natural environment, and the County Conservation and Open Space Element.	Yes	As discussed in Section 4.6, Lands and Realty, the OWEF would contribute to economic growth in the County and preservation efforts would be implemented through the mitigation measures set forth in this EIS/EIR and with required proposed BMPs.
Goal 4: Preserve and enhance distinctive historic desert towns and newer communities.		
Objective 4.3 Maintain and require compatible land uses within the existing communities.	Yes	As discussed in Section 4.6, Lands and Realty, the OWEF would not physically divide an established community and the wind turbines have been sited to maintain buffers from the communities of Ocotillo and Nomirage. The closest property boundary of a sensitive receptor, Ocotillo Community Park, is located approximately 9,000 feet (1.7 miles) away from the project site. In addition, the OWEF would not result in long-term conflicts with existing land uses since recreation activities would be allowed on the project site during the operation period.
Objective 4.4 Limit the establishment of non-residential uses in predominantly residential neighborhoods and require effective buffers when appropriate non-residential uses are proposed.		
Goal 6: Promote orderly industrial development with suitable and adequately distributed industrial land	Yes, if requested General Plan amendment and zone change are approved.	As discussed in Section 4.6, Lands and Realty, the 26 acres of private land is within the Desert Residential designation, which does not allow industrial development. One of the approvals sought for the OWEF is a change to the General Plan land use designation for the property and a corresponding zoning change. With these approvals, the project would be consistent with applicable land use policies for industrial development.
Goal 8: Coordinate local land use planning activities among all local jurisdictions and state and federal agencies.		
Objective 8.8 Ensure that the siting of future facilities for the transmission of electricity, gas, and telecommunications is compatible with the environment and County regulation.	Yes, if the requested plan amendments	As discussed in Section 4.6, Lands and Realty, the OWEF includes a ROW grant and CDCA Plan Amendment, and with approval of both actions, the project would be consistent with the CDCA

Land Use Element	Consistent	Explanation
	and zone change are approved.	Plan. In addition, County approval has been requested to change the General Plan land use designation and zoning for the private parcel where installation of a single wind turbine is proposed. With these approvals, the project would be consistent with County land use policies and regulations.

2. OCOTILLO/NOMIRAGE COMMUNITY AREA PLAN

Ocotillo/Nomirage Community Area Plan	Consistent	Explanation
Towns and Communities *Goal 1: Preserve and enhance the distinct character of the Ocotillo/Nomirage Community Area.*		
Objective 1.3: Maintain and require compatible land uses with the Ocotillo/Nomirage Community Area.	Yes, if the requested General Plan amendment and zone change are approved.	County approval has been requested to change the General Plan land use designation and zoning for the private parcel where installation of a single wind turbine is proposed. With these approvals, the project would be consistent with County land use policies and regulations.
Objective 1.4: Prohibit the establishment of non-residential uses in predominantly residential neighborhoods and require effective buffers when appropriate non-residential uses are proposed.	Yes	As discussed in Section 4.9, Noise, the OWEF would not result in adverse noise impacts to adjacent receptors.
Protection of Environmental Resources *Goal 5: Preserve significant natural, cultural, and community character resources, air quality and water quality.*		
Objective 5.1: Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards.	Yes	When considering approval of the OWEF, decision makers from Imperial County and BLM will consider the entirety of the EIS/EIR and public record. This process will weigh the significant and unavoidable impacts of the project against the project benefits.
Objective 5.3: Protect the groundwater in the Ocotillo/Nomirage Community Area from overdraft and saline conditions.	Yes	As discussed in Section 4.19, Water Resources, the implementation of BMPs and Mitigation Measures Water-1 through Water-10 as part of the OWEF ensures groundwater supply and recharge would not be adversely affected.
Objective 5.4: Ensure that new development proposals do not contribute to overdraft or increase salinity of groundwater.	Yes	As discussed in Section 4.19, Water Resources, the implementation of BMPs and Mitigation Measures Water-1 through Water-10 as part of the OWEF ensures groundwater supply and recharge would not be adversely affected.
Objective 5.7: Stringently enforce the rules for new development, expansion or reconstruction in floodways to ensure that structures will not	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF

Ocotillo/Nomirage Community Area Plan	Consistent	Explanation
adversely affect, hinder, restrict, or alter the water capacity of the floodway and will not result in increased flood levels during the occurrence of a 100-year flood.		would not result in adverse impacts related to flooding.
Community Vision *Goal 7: Achieve balanced economic and residential growth while preserving the community's character and natural resources.*		
Objective 7.1: Maintain and improve the quality of life, the protection of property and the public health, safety, and welfare of the Ocotillo/ Nomirage Community Area.	Yes	As discussed in Section 4.11, Public Health and Safety, the implementation of Mitigation Measures PSH-1 through PSH-12 ensures the OWEF would not result in adverse public and health and safety impacts.
Objective 7.2: Ensure that future growth and development is orderly, safe and does not cause an overdraft, contamination or increased salinity of the ground water aquifer.	Yes	As discussed in Section 4.19, Water Resources, the implementation of BMPs and Mitigation Measures Water-1 through Water-10 as part of the OWEF ensures groundwater supply and recharge would not be adversely affected.
Objective 7.3: Ensure safe and coordinated traffic patterns, contiguous growth within the townsite of Ocotillo and community of Nomirage.	Yes	As discussed in Section 4.16, Transportation and Public Access (Impact Trans-1), the implementation of Mitigation Measure Trans-1 would ensure safety of OWEF related vehicle trips.
Objective 7.4: Coordinate planning activities with the Bureau of Land Management.	Yes	BLM is the federal lead agency and coordination has occurred throughout the application review process.
Seismic and Public Safety *Goal 8: Include public health and safety considerations in land use planning.*		
Objective 8.1: Ensure that data on geological hazards is incorporated into the land use review process, and future development process.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse geotechnical impacts.
Objective 8.2: Regulate development within flood-way areas in accordance with the Federal Emergency Management Agency.	Yes	As discussed in Section 4.11, Public Health and Safety (Impact PHS-3), the implementation of Mitigation Measure PSH-3 ensures the OWEF would not result in adverse impacts related to flooding.
Objective 8.3: Regulate development adjacent to or near all mineral deposits.	Yes	As discussed in Section 4.7, Mineral Resources, no mineral deposits or geothermal operations are located in proximity to any OWEF component.
Objective 8.4: Require, where possessing the authority, that avoidable risks be avoided; and, that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.	Yes	As discussed in Section 4.11, Public Health and Safety, the implementation of Mitigation Measures PSH-1 through PSH-12 ensures the OWEF would not result in adverse public and health and safety impacts.
B. Land Use Designations and Standards 1. Desert Residential Commercial Development Standards: Commercial zoning and land uses are not permitted in this category. Industrial Development Standards:	Yes, if the requested approvals are granted by the County.	As discussed in Section 4.6, Lands and Realty, an Imperial County Conditional Use Permit is required under the land use ordinance. In order for the project to be consistent with the development standards identified, the private parcel located within Imperial County jurisdiction would require a

Ocotillo/Nomirage Community Area Plan	Consistent	Explanation
Manufacturing/industrial zoning and land uses are not permitted in this category.		general plan amendment and zone change.
2. Industry **Policy** The Ocotillo/Nomirage Community Area does not have the infrastructure or other necessary facilities to support heavy manufacturing land uses. There is a major concern that industrial land uses may lead to contamination of ground-water resources. The County supports limiting light industrial land uses to those presently existing, including the current proposal in the Inkopah area on a conditional basis. **Program** · The M-1 Zone is generally not compatible with the Ocotillo/Nomirage Community Area Plan, but could be found to be compatible under unique and unusual circumstances. Such circumstances would include zoning needed to accommodate an existing legal or legal non-conforming use; when additional density or use restrictions can be included by use of an "overlay" or "combining zoning"; or where a Specific Plan, conditional use permit (CUP) or other discretionary permit can be required for a proposed use and mitigating measures can be imposed to reduce or eliminated potential land use conflicts. · Heavy manufacturing uses are prohibited.	Yes, if the requested approvals are granted by the County.	As discussed in Section 4.6, Lands and Realty, an Imperial County Conditional Use Permit is required under the land use ordinance. In order for the project to be consistent with the development standards identified, the private parcel located within Imperial County jurisdiction would require a general plan amendment and zone change.